CHILD PSYCHOLOGY—II

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CHILD PSYCHOLOGY—II

THE KINDERGARTEN CHILD: ITS CONCEPTION OF LIFE AND ITS MENTAL POWERS

BY

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TRANSLATED FROM THE DANISH
BY DAVID PRITCHARD

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THE KINDERGARTEN CHILD

ITS CONCEPTION OF LIFE AND ITS MENTAL POWERS

VOL. II.—1

INTRODUCTION

THE sub-title of this book is in reality illogical, for the two children who have been especially studied and who are the subject of this book, have not attended a kindergarten for any considerable period. A trial was made with the eldest child, R., when she was four years and five months old, but unsuccessfully. Before the event R. was greatly excited at the thought of playing with so many other children, and accompanied her mother expectantly. But upon her return home it was obvious that she had been disappointed, and, contrary to custom, she said very little about her experiences. "We built a house with a big door," and "The mistress sang about a bird that flew," was all she had to report.

Desiring to form an estimate of the kindergarten, I went there one day, and, I must admit, was not favourably impressed. The mistress did not possess the necessary qualifications for her position; and as R. with good reason found the proceedings wearisome, she was, after about a month's trial, taken away again.

By this I do not mean to imply that children should never be sent to a kindergarten. Given capable teachers who really understand their business and who have the requisite educational and personal

culture, such an institution will be found advantageous both to the physical and psychical development of the children. There is one main condition for success, however: that the kindergarten be not regarded as a school. Already it is a matter for serious consideration that so many parents send their children to school before their seventh year; for school attendance exercises a retarding influence on the small child's development. Nothing but evil, however, could result were children of from three to seven years of age made to attend a kindergarten of a school-like nature.

The kindergarten must be a *training institution*, where the child shall have the best possible conditions for its physical and psychical development in every direction. Therefore, "play" — and play alone — should be the method of the kindergarten. In addition, the kindergarten must, in its entire character, be sufficiently "childish," and not commit the error of diverting the child's evolution from its natural course.

The *Froebel Kindergarten*, however, as far as I have been able to judge, is guilty of this error; for it is characterised by the fact that the teacher sets the children to work, showing them what to do and how to do it. On one occasion when I was watching the "play" at the Froebel kindergarten, the lady teacher gave out wooden bricks and told the children to build a chair. They did so; but one child, having made a chair in a manner other than prescribed, was reproved by the teacher, who said: "Now I will show you how to do it." This, in my estimation, condemned the system of instruction at once. The chair the child constructed was good enough and should have

been accepted; nay, more, the child should have been praised for its originality, and the others should have been permitted to understand how a chair could be made in a new manner. This could perhaps have resulted next time in the children constructing thirty *dissimilar* chairs. The teacher, instead of training novices, was manufacturing imitators. She was in the process of strangling the child's noblest characteristic without for one moment suspecting the crime she was committing, or intending to do otherwise than good.

Far and away better than the Froebel system seems to me the system of Dr. Maria Montessori, with which, however, I have but a literary acquaintance, due chiefly to the study of educational material. Dr. Montessori's Kindergarten throws the initiative on the child, both in the physical and psychical spheres of activity, rationalises spontaneous "play," allows an "Edison" to unfold itself in accordance with its latent talent.

The Montessori Kindergarten is an epoch-making discovery, an "America" in education, which will sooner or later exert an influence of vital importance in school education.

Children living in good homes need no kindergarten, and without doubt thrive best in an atmosphere of home with its totally non-compulsory play, especially when the latter is associated with natural, open-air conditions. The regulations and discipline which are unavoidable where many children are to be simultaneously occupied are antagonistic to the child's nature, and in many respects exercise an adverse influence on its development. The fact must never be lost sight

of, that the child when left to its own devices, both in solitary play and in play with other children, looks after its own physical and psychical development to a very high degree. One must therefore be extremely cautious of interrupting this self-development except when circumstances make it absolutely unavoidable.

It is otherwise when the home is incapable of yielding a good thriving-ground for the child. I quite agree with Dr. Monrad that "it may be *necessary* to place in a kindergarten a child whose mother is ill or much occupied and has no trustworthy help in the home. With regard to only children, it is usually to their advantage to be sent to a kindergarten, especially when they are very difficult and disobedient at home." But if this point of view be the correct one, there is, in our towns and especially in the capital, a need of public communal kindergartens, where parents can with confidence leave their children, secure in the knowledge that they will there thrive in good physical and spiritual surroundings. How soon children should be placed in a kindergarten must of course depend to a certain extent on circumstances connected with the home and the disposition of each separate child, but it is, in any case, not advisable before it has completed its third year. By "the kindergarten child," therefore, I mean the child from the age of three to four years, when it enters the kindergarten, until it begins to attend school at the age of six to seven.

CHAPTER I

THE CHILD'S PHYSICAL DEVELOPMENT

THE first condition in order that the child may develop psychically to the greatest possible degree, in accordance with its inherited capabilities, is: that it shall receive the correct *physical* training.

The common assumption among laymen, not to mention the religious conception, is without doubt that "soul" and body are totally distinct entities. The body houses the soul, it is thought, and *mens sana in corpore sano* is highly desirable; but the intimate relationship between our spiritual and our physical life is not generally recognised. Nevertheless, as Meumann says in his *Lectures on Experimental Pedagogy*[1]: "There is no dividing line between physical and psychical work; all physical work is at the same time psychical . . . all psychical work is also physical. . . ." It is therefore in reality only an abstract idea when we talk either of the spiritual or of the physical evolution, for both take place simultaneously under mutual influence. And once this fact is established it is obvious that no

[1] E. Meumann, *Vorlesungen zur Einführung in die experimentelle Pädagogik.*

harm can be done by concentrating one's attention first and foremost on the physical development.

There being such intimate connection between the physical and the spiritual, it is clear that the child's physical development, namely, its gain in height, girth, weight, etc., and its condition of health, are of the utmost importance. Parents or, in their stead, the community, in the event of the parents failing, ought therefore first and foremost to provide for the children's bodily welfare; this is the essential condition for their attaining the highest possible psychical development.

Numerous investigations in connection with children prove how important the physical development is for the psychical. Stanley Hall states, for example, in *Adolescence*, p. 37: "Most frequently it is a fact that the children who make the greatest progress at school are larger in chest measurement and size of head than the children whose progress is less"; and Meumann writes in his *Vorlesungen*, p. 52: "The badly nourished child which is backward in bodily development achieves in psychical respects less work than the well-nourished and well-developed child, and gives the impression of being intellectually inferior to what it really is." By means of measurements of 35,000 boys and girls at St. Louis, Townsend Porter established a definite law for this relationship, namely: "The higher in the school a group of children of a certain age rises, the larger are the average figures for their size and weight, in comparison with the average of all the other children of the same age; and the lower a group of children is in the

school, the lower is the group's average size and weight.[1]

Nobody will be surprised to hear that the parents' social circumstances exercise a great influence on the children's physical, and hence on their psychical, development. Meumann[2] in this connection says: "The parents' social position has the greatest influence on the child's general physical development. This influence is even stronger than that of nationality." If the parents are unable to procure for their children a thorough physical training, it is therefore necessary, both for the sake of the children and of the community, that the community assume the responsibility; for neglect of the physical development revenges itself in the shape of inferior psychical development; and it is in every community's interest that each individual citizen attains the highest possible psychical efficiency.

To fix a standard for the child's height, bulk, weight, etc., at different ages, in order thereby to secure a basis for comparison and thus be able to calculate each separate child's physical development, is, however, difficult even within the bounds of a single nation. For there is considerable difference between the separate individuals, even when they are closely related; and by inheritance a tendency to great height, or the converse, inferior height, is transmitted to the offspring. A big boy, who has inherited the tendency to be tall may nevertheless be ill-nourished and "small" compared with his natural potentialities,

[1] With a linguistic alteration from Dr. P. Hertz, *Sund Skoleungdom*, p. 47.

[2] *Vorlesungen*, p. 57.

whilst on the other hand a little boy can be "big" in proportion to his inheritance. Probably, however, the skilled doctor's estimate founded on measurements and weights is seldom far wrong.

For a very large number of children there can, however, certainly be fixed a comparatively correct normal height and weight standard in the various age-classes. Dr. Monrad gives, in *The Mother's Book*, the following table of heights and weights:—

DR. MONRAD'S TABLE OF HEIGHTS AND WEIGHTS.

Age.	Height in Cms.	Net Weight in Kg.
At birth . . .	50	3·3
At end of 1st year .	70	9·2
„ „ 2nd „ . .	80	12
„ „ 3rd „ . .	87	14
„ „ 4th „ . .	92	16
„ „ 5th „ . .	100	18
„ „ 6th „ . .	105	20
„ „ 7th „ . .	110	22
„ „ 8th „ . .	115	24
„ „ 9th „ . .	120	26
„ „ 10th „ . .	125	28
„ „ 11th „ . .	130	30
„ „ 12th „ . .	135	33
„ „ 13th „ . .	140	36
„ „ 14th „ . .	150	40

From the fifth year onwards Dr. Monrad estimates an average annual growth in height of 5 cms. until

puberty. At this period a stronger growth commences. With girls it takes place earlier than with boys.

The individual child can, of course, only with caution be judged by means of the table. For the sake of completeness, however, I append the height measurements of the two children, R. and S., of whom more will be heard later. At the end of the

	4th	5th	6th	7th year.
R. . .	104 cms.	109 cms.	117 cms.	120·9 cms.
S. . .	98·8 „	103 „	111 „	116 „

Their physical development R. and S. have attained by means of a diet which is in the main identical with that recommended by Dr. Monrad. For breakfast, they are given bread and margarine, and cocoa made with water; for lunch, oatmeal or barley porridge with milk; for dinner, plain everyday dishes devoid of all strong seasoning, a little meat only very occasionally; finally, for supper, cocoa made with water, and bread and butter or bread and margarine.

The child must of course never taste intoxicating drinks, neither should it take coffee or tea. R. and S., however, occasionally received a teaspoonful of coffee or tea, mixed with a cupful of milk; but they have scarcely tasted beer except in food.[1] Children themselves as a rule prefer water and milk above all other drinks, and do not ask for anything else unless the parents accustom them to desire it. Far too many parents, however, thoughtlessly and from sheer kindness of heart, undermine their children's health and

[1] Some Danish dishes in ordinary use are prepared with beer, chiefly non-intoxicating.

handicap their bodily development by giving them harmful drinks or too highly seasoned foods. Parents cannot go far wrong in keeping, for the sake of the children—and of themselves,—to the plainest possible daily diet.

CHAPTER II

THE CHILD'S WORLD-PICTURE, ETC.

A. TIME

EVERYTHING that happens, happens in *time*, in the course of time; but the infant has no idea of time, for it lives entirely in the moment.

In order to recognise time, it is necessary at all events to be able to look backward and remember that something *has* taken place, and to look forward in expectation that something *may* take place. It is difficult to decide exactly when the child begins to apprehend time. It is assumed that this first of all occurs during the third year,[1] but I have not succeeded in collecting evidence in this connection. On the other hand, I have succeeded in tracing to a certain extent how my children have acquired the conventional *time standard*, and therewith the *elements of chronology*.

The principle of time measurement is, of course, regular movement: the earth's circuit round the sun in the course of the year, the earth's revolution on its axis in the course of the day, the swing of a pendulum in the course of a second. In everyday life we

[1] Høffding, *Psychology*, 1911, p. 239.

measure the larger periods of time with the aid of the *changes of light* caused by the movements of the earth and of the moon. The calendar day is a day and a night together; the month's original period stretched from new moon to new moon; the year was that time which elapsed between one season and the next similar season, for example, from summer to summer, *i.e.* from one specially luminous period to the succeeding one of the same character. Our modern everyday timepiece is thus based on mere regular changes of light, just as it was with the aid of light-changes that primitive folk gradually evolved a chronology. The child must therefore, if it of its own accord or partly from its own observations succeed in measuring time, remark the changes of light and discover a regular alternation between light and dark, or between greater and smaller quantities of light and their accompanying quantities of warmth, and the resulting consequences.

One must of course not confuse the acquisition of the conventional denominations of periods of time with the recognition of the periods themselves. There is nothing to prevent a child learning from its surroundings time designations, which may be but empty words to which the child attaches no idea. On the contrary, the child may very well acquire a clear idea of a period of time, without even knowing its conventional name.

Now, as light already at a very early period fascinates the child,[1] there is reason to assume that it very soon discovers the change from day to night;

[1] In this connection *vide* Vilhelm Rasmussen, *Child Psychology*, i. p. 14.

and to this assumption is added the knowledge of the deep impression made by darkness when the child becomes so big that it sleeps only at night, and has the whole day for its play. All people tend to regard that which is pleasant as a matter of course, and therefore it is not remarked particularly. That which causes inconvenience, however, or, worse still, pain, is on the contrary regarded as abnormal, and makes a deeper impression. It is thus at all events with the kindergarten child with regard to day and night. Night makes the stronger impression, among other reasons because the infant has to interrupt its play to go to bed. Therefore it is also a constantly recurring event that the child's dolls are put to bed and made to get up.

In the infantile consciousness, however, as far as I have been able to ascertain, day and night range as two *separate* periods of time. The child does not group them together as one day;[1] and when it speaks about to-day, to-morrow, it thinks only of the light part of the day, and does not include the night. In this respect children resemble the lowest savages, who also keep no count of time.

On the other hand, the child recognises of its own accord the fact that day follows day, and describes this sequence in its own manner. Thus R., when four years and three months old, said: "I shall be only a *little* ill to-morrow, and the day after to-morrow I shall be well." She understood, at all events apparently, both chronological expressions and was thoroughly conversant with the sequence of days.

[1] Danish, *Dögn* means a day and a night, just as we say, *e.g.*, seven "days" in a week.—TRANSLATOR'S NOTE.

The technical term, however, was not thoroughly mastered; for four months later, she said: "When Karen has slept once she won't go to school, but when she has slept once more, she will go to school." This is a laboured mode of expression, but it shows that she grasped clearly the sequence of days. Shortly afterwards, when R. was four years and eight months old, it became evident that she was completely at home with the phrase "the day after to-morrow." I told her: "Aunt L. is coming the day after to-morrow," and to this she replied: "That is when it is to-morrow, and when it is to-morrow." This is indeed an unmistakable definition of the term in question.

Even supposing that the child has grasped the idea of diurnal sequence, it has nevertheless a very incomplete comprehension of *duration of time.* When R. was four years and two weeks old, she one day placed a used stamp on my writing-desk, and said: "It shall lie there until I'm big"; and S., aged four years and three months, did exactly the same thing. They both of them, with an interval of three years, at about the same age, betrayed the fact that they had no reasonable conception of the period that must elapse before they could become "big"; but probably regarded it as very short. "Big" in this connection meant the same as "grown up," for we were collecting stamps at the time, which they were to have when they were grown up. The speech referred to, however, might be an expression of the child's artless belief that the stamp could remain lying on the desk for an indefinite period.

Neither does the kindergarten child at first calcu-

late shorter periods of time "correctly" (*i.e.* in comparison with adults). When R. was about four years and eight months old, she asked her mother: "When is father coming?" and received the answer: "To-morrow." Thereupon said R.: "Shan't I go to bed now?" This can hardly mean otherwise than that she imagined "to-morrow" would come sooner if she went to bed at once. It seems to me incredible that a child of that age should be able to discover that by sleeping she would avoid noticing the passage of time. Besides, S. showed that the child regards the night as very short when at the age of four years and eleven months she remarked: "I slept such a long time last night, a whole hour"; and R., five years and four months, asked: "Is the night an hour long?" Children obviously sleep a sound, dreamless sleep and consider the duration of their slumber as very brief. It is therefore natural that when mentioning passage of time they, as before remarked, do not lay stress upon the night, but think only of the day. The belief that the night lasts *an hour* is probably quite fortuitous, caused by the fact of the hour being the only short space of time with which they are acquainted at that age. They know nothing, as yet, of minutes and seconds.

Whilst the child can without assistance arrive at an understanding of day and night, *the week*, on the contrary, is a purely arbitrary institution, which the child only learns to know from its environments. Originally, five, ten, or even twenty days were grouped together for the purpose, according as one counted on the fingers of one hand or both hands, or added the toes as well, after the manner of the ancient Mexicans.

The Babylonians were the first to introduce the week of seven days, named after the seven most important celestial gods, namely, the sun, the moon, and the five nearest planets. Such an artificial period the child cannot of course be expected to understand unaided. The sole clue the child can find for any spontaneous estimate of the week is the weekly holiday; but long before it has observed the regular recurrence of Sunday, its surroundings have taught it the names of the seven days of the week. S., when four years and six months old, asked very frequently: "What day is to-day?" and after receiving an answer, she proceeded: "What day is it to-morrow?" and so on. Perhaps her interest in her Sunday farthing was the motive underlying the questions. By the time she was four years and ten months old, it had become obvious to her that Sunday differed from the other days, for she asked: "Why don't they work on Sunday?" The following speech made a month later proves that she understood the significance of the week: "Not on Friday, but on Friday, and then on Friday, it's my birthday."

Environment also teaches the meaning of *the month.* True, it is just possible that the child could of itself observe the moon's changing form, and in this manner arrive at an understanding of the original month, just like savages who hold a feast at the entry of the new moon; but as children at the age under discussion retire to bed very early, they lack the objective conditions for such a series of observations.

On the other hand, the child can of itself discover *the year,* because *the seasons,* with their widely

different characteristics and the thereupon consequent variety of games, make a very deep impression. The warm season, summer, when the child can always be out of doors, and the cold season, winter, when it so often must remain in the house, are recognised immediately. S., when four years and six months old, often during the summer spoke of "next winter." Also spring, with its budding leaves and first flowers, and autumn, with its ripened fruit and fall of leaves, are apprehended spontaneously by the child. One early spring day when picking flowers in Frederiksberg Gardens, R., five years and four months old, said: "There are no flowers in the winter." She understood evidently the difference between the past winter and the advancing spring. Whether the child unaided can, at this stage, group the four seasons into a year, I have not, on the other hand, succeeded in ascertaining. But the child is at an early period conversant with the year idea through hearing its age mentioned. Already when only two and a quarter years old, R. remarked: "I'm two and a quarter."

At a later period, when R. was seven years and six months old, she displayed a thorough grasp of the year. I asked her: "Do you know what a year is?" and she replied: "It's from one Christmas to the next Christmas, or you can say, too, from one birthday to the next." As it was a summer day when she gave this explanation, the remark indicates among other things that Christmas and her birthday were events in the year which had made the deepest impression upon her. But she had at the same time a clear conception of the different seasons; for when

I asked her: "Do you know what seasons there are in a year?" she replied, "There is a summer, an autumn, and a winter, and then comes a spring."

The kindergarten child cannot understand long periods of time, but sometimes it amuses itself by indulging in flights of fancy among them. Thus R., when four years and ten months old, said: "Can you remember that? . . . It was two hundred thousand years ago." This was probably meant to expose the inferiority of my weak memory. But very soon afterwards she repented of her harshness, and said: "I did lose my rake once. But it was *two* years ago, not two hundred thousand years." In other words she had been fully conscious of her exaggeration.

Dates of course are beyond the scope of the kindergarten child's knowledge; for only by chance would such things be mentioned within the child's hearing.

B. SPACE AND THE PLANETS

Just as with Time, so with regard to *space*, the kindergarten child has a totally different conception to the adult, and in its range of ideas resembles in certain respects the savage. If we use realisation of time and comprehension of space as measures of culture or of evolution, as Troels Lund has essayed in his book, *The Elucidation of Life*,[1] we must of necessity arrive at the conclusion that the child passes through a whole series of cultural transitional periods. Troels Lund says in the above-mentioned work, p. 6: "We therefore take it for granted, that susceptibility to light and sense of locality are two of

[1] Troels Lund, *Livsbelysning*.

the most primitive and most firmly seated forms of expression of the human intelligence. By these two channels proceeds the most important spiritual development of the individual and of the race." Again, p. 7: "The most striking form assumed by the sense of locality is the ability to estimate distance. And the greatest distance mankind has to reckon with is that between earth and heaven. In the different estimates of the distance between earth and heaven made in the different ages we have therefore the most obvious scale of the race's spiritual development, its varying outlook on life." Troels Lund, however, did not rely entirely on space-comprehension in establishing his estimate of culture; for he says later, p. 18: "A highly significant characteristic of all these races (*i.e.* the most primitive savages) is that they lack the idea of chronology. . . . Everything indicates that chronology has pointed out the road, the crossing, to the races which have struggled to the next stage in culture."

In short, Troels Lund uses the race's estimates both of time and of space as a means of judging its standard of civilisation. And just as the child passes to a certain degree through the same stages of culture as regards comprehension of time, so also does its evolution as regards realisation of space closely resemble that of the race. But Troels Lund's culture-measure may only be applied to evolution in its broadest lines.

As far as space is concerned, the kindergarten child, as long as it has learnt nothing from its environment, remains on the same level as the very lowest of savage races. And as the child itself un-

consciously assumes that its ideas are correct, it is not in a position to interpret its own sense-impressions; in addition, its "world" is quite small. A boy, who had just passed the boundary of his own parish, asked: "Mother, are we in Germany now?" His Denmark was not very big, since the foreign land lay at the very border of his parish. Such a small child imagines also, like the savage, that the world is shaped like a tent or room. The level ground is the floor; the vaulted sky, supposed to be quite close, the roof. One day, when R. was four years and one month old, she saw some pine trees, one of which was very tall, and said, "Look, that one reaches right up into the air." By the air she meant in this connection "the sky," for it was misty atmosphere with low hanging "sky"; besides, the smallest straw reaches up into the air in the literal meaning of the word. Finally, it must be borne in mind that a little child sees a tree from another point of view than the adult, and therefore has the tree projected far higher up into its "sky." Her impression calls to mind, *inter alia*, the New Zealand native legend that the "sky" and the earth were pushed apart by the trees, after which the light poured down over the earth.[1]

On another occasion when R., four years and six months old, was playing at ball, she expressed the same idea in a partly new manner, showing incidentally that her universe was very small. She said: "Now it's going right up into the air (*i.e.* the sky). . . . Now it's going right up to the roof. . . . Now it's going right up to the moon." Presumably it was the sun she mistook for the moon. Three

[1] Bahnson, *Ethnografi*, p. 116.

weeks later she asked me, "Can you throw the ball right up to the clouds?" Even allowing that she possessed an exaggerated estimate of her father's strength, she can scarcely have supposed the clouds to be very elevated.

The assumption that on the above occasion she confused the sun with the moon was confirmed at a later date. When five years old she one day among some trees saw the sun shining through misty atmosphere, and said to me, "There's the moon." Evidently at that period she was not aware that it is the sun which appears by day.

With regard to its impression of *sun*, *moon*, and *stars*, the kindergarten child does not quite resemble the savage. It accepts these planets as *gods* with human attributes, a faith which has maintained itself high in the evolution of civilisation, but which does not arise spontaneously among the children of civilised nations. The child, however, resembles the savage in as much as it regards the planets as "light" and at the same time humanises them. A native of Tierra del Fuego, to whom Missionary Phillips once complained that it was too hot, said to him: "Don't say the sun is hot, for then it will immediately hide itself and the cold wind will begin to blow."[1] This closely resembles R.'s conception expressed one day when she, four years and one month old, saw the moon; for she said: "It's the moon, it's round. . . . It moves when we move," and later when a cloud covered the moon, "Look, now it's been killed"; and again, shortly afterwards, when the moon again appeared. "There is another moon." When, however, the same

[1] O. Peschel, *Völkerkunde*, p. 256.

phenomenon happened again, she said: "There it is again."

In these remarks of hers there are several points of interest. First of all she misunderstood the moon's apparent movement, which was caused by our walking; and even after I had attempted to explain to her the real facts of the case she stuck to her opinion and repeated: "The moon moves when we move." Secondly, R.'s remarks show that she *personalises* the moon, for otherwise it could not be killed. Furthermore, she betrays with respect to the moon a line of thought which brings to mind the ancient Egyptians' conception of Osiris, the sun, who died, after which Isis brought forth a new sun, Horus. Finally, she said at the end that the new moon was the same as the one that disappeared, an analogy to the Egyptians' recognition of the fact that the next day's sun was the same as the one which sank the preceding evening. Even if the child's ideas are not quite identical with those found in primitive civilisations, there is without doubt an unmistakable resemblance in the mode of thought.

That R. really regarded the moon anthropomorphically was indicated on a later occasion. One day, when five years and eleven months old, she saw a cloud pass before the moon, and said in an undertone to her mother: "Can you see the moon moving?" "Yes, it looks like that," said R.'s mother, to which, however, R. replied: "Yes, but it doesn't really." She was showing off knowledge acquired during her previous walk with me. But despite her erudition she said three days later: "The moon goes away sometimes; perhaps it goes in to look after the rain

or clouds, or perhaps it's cold." She assumed plainly enough that the moon was a person.

When four years and three months old, R. one evening saw some *stars*, and inquired: "What are those little shining things up there? When we move, they move too; but they don't really" (she had learnt this in connection with the moon). "Why can't we see them in the daytime?" The knowledge R. acquired on this occasion concerning stars, she used to show off with later, when she, four years and eleven months old, was out for a walk with her grandmother. She saw a star, and said: "Look, grandma, there's a star. Isn't it pretty? . . . Just wait a bit and a lot more will come." Her grandmother, wishing to damp her enthusiasm for herself, said: "Yes, I know"; but R. declined to be damped, and declared: "Yes, I knew, too. I've often seen it. First there's only one; and then—pip—pip—pip—they peep out like that from the air." When S. was about five years old, she saw the evening star in the twilight, and said: "How did it get up there? I think they've hung it up on a long string."

The children have first mentioned *the sun* at a later period, probably for the reason that they do not look directly at the sun. But when R. was six years and seven months old she one evening witnessed a sunset in company with her mother, and disclosed on this occasion her impression of the sun's size. R.'s mother explained to her that "the earth goes round the sun" and that this was the cause of the sunset. R., however, completely misunderstood the explanation, for she said: "Yes, now the sun went into the earth"; —showing, among other things, that she considered

the earth as much larger than the sun. Her mistake was pointed out, but in vain, for R. replied: "But it must do that when the earth *goes round* the sun" [*i.e.* surrounds it]. It was unfortunate that in the explanation an ambiguous expression was used, which succeeded only too well in concealing the child's direct sense-impression.

That *the sun* is the source of light, the child does not understand at the age under discussion. When R., four years old, was out for a walk one day, the sun being in front of her, she turned round and, seeing our shadows on the road, asked: "Why don't they go before us?" [As they had before we turned.] That the shadow lies behind the object illuminated she had not yet learnt, nor, in consequence, that the light emanated from the sun. To ascertain something if possible of her impression of the sun's significance as the source of light, I inquired of S. when she was four years and four months old: "Why is it day?" but she only answered: "Don't know"; and when I then asked: "Why is it night?" she answered again: "Don't know." She had thus not yet learnt that darkness is caused by absence of sunlight. But later on the child grasps the connection between sunlight and day; for when I (in another room) asked R., who was seven years and five months old, the same questions, she replied to the first: "Because the sun shines"; and to the other: "Because the sun has set." But *she* had, as previously related, already seen a sunset, and had perhaps in other ways picked up knowledge from her environment.

When R. was four years and one month old she again noticed her *shadow*, which was very long, and

inquired: "Am I so big?" Here, again, she proved that she did not understand the cause of the shadow. For reply, I drew her attention to a lady and her shadow; and R. saw that it was much longer than the lady was tall. With regard to the origin of the shadow, I said nothing; but about fourteen days later she asked me: "Why is there no shadow when there is no light?" and in this case too is evidence that she had not yet understood that shadows are produced by light. But when she was seven years and five months old, and I asked her: "Why is there no shadow?" she answered: "Because the sun doesn't shine behind."

C. RELIGION

As the celestial bodies, together with the sky, light and darkness, have all been of such great significance in the religious evolution of the race, it is natural in this connection to analyse the child's *religion*, to test whether in this respect also there should prove to be parallel lines of development.

As far as the race is concerned it is generally accepted that its religious evolution has its origin in *fear*. Troels Lund says hereon in *Livsbelysning*, p. 15: "Of the two opposites, light and darkness, darkness must have exercised the earliest and most powerful influence on the human mind. It is the same to-day. Whilst daylight seems to every child to be a matter of course, the origin of which it does not concern itself about, the child is from a definite moment early in its development filled with horror of the darkness, that black, frightful thing which

envelops it and in which it is afraid of getting lost. Turning to present-day primitive savages, we find the same state of affairs. Their first conception of something vast, something stronger than mankind, their first religion, expresses itself in terror of the dark. Round this nucleus gather other forms of fear, fear of those who have passed away, the dead, fear of solitude, fear of wild beasts and storms. . . . We consider ourselves justified in forming this conclusion regarding the primitive human being—of whom, it is true, we know nothing for certain—that, provided he has been left to himself to struggle forward, he must first of all have arrived at a belief in the powers of darkness."

This theory, however, is open to several objections, not least in connection with child psychology.

Thus it is far from correct that darkness first (*i.e.* before light) exercises its influence on the infant. The little child is, on the contrary, strongly attracted by light; while it does not, as far as I could observe, observe the darkness at all.

Neither is it correct, that the child from a definite early moment is filled with horror of the darkness, "in which it is afraid of getting lost." I have not observed any fear of the darkness in my children (nor any fear *in* the dark, which, however, is another matter). The children have from a very early age been put to bed in a dark room and have not shown any instinctive fear of the darkness. But this, of course, does not prevent them from acquiring it later on in various ways. First and foremost, careless talks of ghosts and the like are calculated to instil fear into the child; in addition, dreams or actual

unpleasant occurrences at night may upset it. In *Child Psychology*, i. p. 145, I have related some observations of R.'s fear in the darkness and the beneficial effect of lighting the light to enable her to recognise her surroundings. At one period during her fourth year, however, R. slept in a lighted room, but later on we once more accustomed her to darkness. But one evening, after she had slept in darkness for several nights, she employed a ruse to procure a light. Her mother said: "We had better put out the light in the passage; Father says you sleep best when it's dark." To this R., who lay in company with three little dolls, replied: "Yes, I do, too; but we had better have a light for the little dolls, . . . mind, not for my sake but only for the little dolls." That this really *was* a ruse was proved three weeks later. R. asked: "Why does S. cry so much at night?" She received, whether rightly or wrongly, the reply: "Because it's dark in the room"; and thereto remarked R.: "That doesn't matter. I like sleeping in the dark." But upon her mother inquiring: "Why, then, do we have to light up in the passage [sometimes]?" R. answered: "Because otherwise it's *too* dark." The foregoing shows that R. at that period did not like complete darkness, but preferred a gleam of light from the passage. From this, however, one is not justified in assuming that the child feared the darkness. Possibly while it was dark something had happened to arouse her uneasiness and anxiety; and the latter supposition I find confirmed in R.'s case by an event which occurred when she was about five years old. I chanced to utter a loud shout during a dream, which so frightened R. that for some time afterwards we

were compelled to keep a light burning when she was in bed. But by the time she was five years and three months old, her nervousness had quite vanished, and she asked of her own accord to have the light put out and the door closed. So feebly rooted therefore is fear in the darkness that even such a strong impression of discomfort as the foregoing could die away completely. And since that time, as far as I am aware, R. and S. have never (with one exception which will be discussed later) experienced anxiety in the dark. I therefore believe neither that the child is naturally afraid in the dark, nor that it fears the darkness itself. With normal, healthy children, undesirable experiences are the cause of fear in darkness, and deficiencies in education the cause of failure to eliminate such fear. But, needless to say, some children are more difficult to treat than others.

With regard to savages also, Troels Lund is probably wrong. First of all, we know nothing whatever of the *first* germs of religion; for the fact of grave-monuments having been found originating right back in the earliest ice ages proves that the belief in life after death was even then extant. The present day lowest savages are therefore scarcely in the earliest stage of religious evolution. Secondly, I question also whether "fear of darkness" is the primary motive and "seed" in primitive peoples' religion. It seems to me very reasonable to assume that its *origin* is the concrete dread of evil, actual or imagined; whence, however, can quite possibly evolve a more abstract fear of darkness as such. Finally, I am not sure that there is not an odour of *hope* in this fear, an expectation that the powers of darkness can be propitiated.

True, the latter fact does not exclude belief in the powers of darkness and fear of their malignity; but it would, if correct, bear witness that there was for the race as well as for the infant, light in the darkness and therefore a possibility of relief. Thus also I interpret Høffding, who in his *Philosophy of Religion*[1] says: "There is no reason to believe that it is fear alone which creates gods. Certainly it seems to be the rule for evil things to be worshipped in preference to good; but there remains the possibility that they are worshipped in the hope of influencing them favourably." These remarks apply obviously to religion that has degenerated into idolatry, while the child, on the contrary, does not worship any of the powers of darkness even when it fears them; nevertheless I find Høffding's point of view analogous with the one I have expressed regarding Troels Lund's theory. So far as I can see, there exists in the childish mind both a strong susceptibility towards that which it imagines to be capable of harm, and a great trust in that which can avert the danger. Under favourable conditions the idea of danger never seems to trouble the child. Just as light is regarded as a matter of course, and darkness as unnatural and disturbing, so does the healthy child, which has not been frightened, regard harmless, beneficial occurrences as natural, and terrifying, harmful experiences as unreasonable interruptions. The child therefore does *not* live in "a belief in, and fear for, some mighty, evil, and malignant being which mischievously pursues mankind," as Troels Lund states of children and "savages." The child seems to me, as

[1] H. Høffding: *Religions Filosofi*, p. 128.

far as its temperament is concerned, cheerful and confident. It does *not* live in a state of dread produced by the dark.

As regards *concrete religious conceptions*, they are naturally dependent upon environment; but the child moulds the conventional religious figures to suit its own individuality. R. and S., however, had no opportunity in their own home of hearing religious matters discussed, neither in one direction nor the other, their parents desiring the children to live in as natural a state as possible as regards religion. But this careful attitude has not prevented others, such as relations, or servants, or even total strangers, from well-meaningly supplying the children with sundry religious ideas, occasionally supplemented with a short criticism of the parents' point of view. People do not as a rule suffer from excessive delicacy of feeling!

These gratuitous lessons in religious conceptions have, however, to a certain extent been of use, because they have afforded opportunities to observe the children's revision of the information received. When S. was four years and four months old, she thus interrogated her mother: "Do you know what she looks like, the lady up in the air? I think she has gold, silver, and pearls?" Her mother asked: "Which lady?" to which S. answered: "God." Curiously enough, she had jumped to the conclusion that God is a woman; but otherwise her ideas were typical for a child of her age, and corresponded closely to those of the primitive savage.

The name usually given to the savage's cosmic conception of religion is *Animism*, because he believes

the world to be full of spirits. They exist in the sky and on the earth; they are in mountains, hills and dales, in rocks, in the water, in the air, in plants and animals, everywhere. Most frequently they are the souls of the dead which are generally imagined as dwelling in some object or other, or in an animal. Occasionally, however, the plant or animal is regarded as having its own soul, the departure of which causes the death of the plant or animal. It is the simplest explanation of *nature* in existence, because it says without any beating about the bush: As mankind is, so is everything else. The savage regards himself as a fleshly sheath, a physical dwelling for a soul, which can slip out in search of adventure during the night, but can fortunately return at the approach of dawn. In dreams the soul is absent; it goes hunting or fishing or has something else on hand; but the dream is regarded as reality just as much as the events of the day, consequently the soul must have been absent from the body. Sometimes the soul can be seen quite plainly, as when one's shadow walks by one's side. At other times it shows itself as a reflection in smooth water; and occasionally its voice is heard in the echo. All these scattered experiences are summed up in the conception that there dwells a soul in the body, something light and airy and of the same form as mankind itself. But at death the soul departs as the last puff of breath. Ergo, what then can the soul be otherwise than a puff of breath!

This belief is still preserved in our own language (Danish), for we use one and the same word in two variations to express soul and breath, namely, *Aand*

and *Aande*. And thus it is in a number of languages. In Latin the corresponding terms are *Animus* and *Anima*; in Hebrew, *Nefedz*, etc. etc. There are even languages in which the same word is used to designate both soul, breath and shadow.

The soul's journeys in dreamland being regarded as actual, the savage must of necessity believe his soul has *really* met a dead person's soul, in the event of his dreaming it. The belief in the nocturnal wanderings of the dead is therefore a natural logical sequence of the savage's interpretation of dreams. But what becomes of these spirits during the day? They are never seen about. Of course not; for spirits cannot bear the light. They hide themselves therefore and take up residence in pots, trees, stones, animals, and other places, from which, when opportunity occurs, they pay calls on the dead body in the grave.

With children one finds at an early period (as I have stated in *Child Psychology*, i. p. 125 ff.) the same system of animating things; but in the child's case it cannot be explained as a result of dream interpretation or kindred theories. *The child quite simply regards things as analogous to itself.* By degrees, and before the kindergarten age, it has emancipated itself from the belief that dolls and other lifeless things are living and humanlike; but the moment it is confronted with conventional religious conceptions, back comes its animism with a rush. Thus also in the case of R. in whom there were first of all discovered religious ideas at the age of four years and nine months. She saw a picture of Jesus and another of the Virgin Mary, and said: "There's

an angel man, and there's an angel woman. They're wearing angel clothes." Her mother inquired: "What are angel clothes like?" and received the answer: "A shawl . . . that's angel clothes . . . silk clothes." The angels were then without doubt human beings. The same held good with a girl of about six years old, who one day asked her father: "Father, when an angel breaks its wing, does it go to a doctor or to a vet.?"

Another incident shows what comes of teaching small children religious ideas. A four-year-old girl said one day to her mother, when directed to enter a room alone: "I won't go in there." Her mother could not understand this, and asked: "Why not?" "No," said the little one, "because Him, Jesus, He is everywhere." She was afraid of meeting Him.

When five years and six months old, R. inquired of me: "What is Our Lord?" The question surprising me, and wishing to find its origin, I asked: "Where have you heard about it?" R. answered: "Holger [a playmate] wanted to go into our garden; and so I said it belonged to my father. But then Holger said: 'Yes, but Our Lord owns everything.'" Holger evidently meant that on the strength of this presumption he might enter my garden; and it had made a deep impression on R. that there was some one who owned her father's garden—who *could* it be?

A month later she again showed that she was occupied with the matter, but her ideas were still very vague. She used the expression "they" of God and spoke of several Our Lords, pointing up in the air, and asking: "Is it Our Lord, or is it clouds? Perhaps some of them are Our Lords and some of

them clouds." The day following she inquired: "Is Our Lord alive or dead?"

At the corresponding age, five years and seven months old, S. asked: "What do Our Lord and Mrs. Our Lord do?" I: I don't know; perhaps they are bored." S.: "Yes, they sit up there in the air and can never go for a walk or anything." Can one demand a more exact analogy between human beings and deities? The conceptions expressed in this instance by S. are really quite "Greek." Again, when S. was five years and nine months old, she asked: "Is Our Lord inside me?" I answered: "No, I don't think so"; but then S. persisted: "Is He here on the earth?" and upon my replying: "Yes, probably," she said: "Yes; He's just as nice (a person) as us others . . . *nicer*." Her gross animism declared itself if possible still more quaintly some days later. She demanded: "Is God in the heart?" Her mother replied: "I don't know." S.: "Yes, He is; R. says so. Isn't He?" Mother: "I don't know." S.: "Yes, you do; you must tell me. Is He there or isn't He?" . . . Soon afterwards she said loudly and aggressively: "H'm! h'm! . . . He could hear *that*."

Her knowledge of her parents' attitude to religion R. displayed for the first time when five years and seven months old. She said: "The rain comes from Our Lord. All the others say that; but we don't know Him." The "we" could indicate that she hesitated between the belief of all the others and that of her parents.

At all events, criticism was not lacking towards the religious theories brought her by the housemaid. R. said, for instance, when five years and eight months

old: "Olga says that if we are good, we go up to Our Lord in the air, and get little wings, when we are dead . . . but only if we are good. . . . But we don't know about it when we're dead; so it doesn't matter." R. had a remarkably effective way of reacting against the importunities of her environment, in spite of the fact that her parents, as before remarked, never influenced her against religion. When she was five years and eight months old, a strange lady asked her an unnecessary question: "Will you be confirmed when you are grown up?" R. replied very sensibly: "A little child can't know anything about that."

An amusing misunderstanding of a religious theme was made by R. when six years and seven months old. Her mother said: "Now that I've got up I feel much better," to which R. remarked: "Yes, that's just what Jesus says . . . you know, to the blind man there in the picture: Get up and be well." The story had been told her by the maid, but R. had misunderstood it, and thought that the sick man became well by getting out of bed. He had, in other words, received nothing but good advice.

Misunderstandings combined with crude animistic analogies stamp the kindergarten child's religious beliefs. When R. was six years and two months old, she related about a little girl: "She was at the hospital, and now she's up in the air." R.'s mother said: "Do you mean that she is dead?" R.: "Yes, she's with God. That's what Olga calls that Jesus."

In spite of the fragmentary nature of the infantile religious ideas, they are occasionally deeply tinged with sentiment. R., when six years and four months old, saw at her grandmother's house the picture of

an angel holding its hands over two children. She was greatly taken by the picture, and whispered to her grandmother: "How pretty it is," and later on asked if she might look at it every time she came there. But possibly her emotion was roused by the angel's kindness towards the children.

When six years and seven months old, R. still had a purely animistic conception of God. Her mother was reading in a Danish reading-book a poem of Carl Andersen called "The Wishes." It treats of a little girl who received permission on her birthday to pick flowers in the clergyman's garden and to drink out of his cups, which were decorated with star flowers. When the reading was finished, R. said: "There, you see. The clergyman, that's God." She probably thought: The one that gives the good gifts is God. The clergyman gave the little girl what she wished; therefore he is God. R.'s God was not only of human shape; He was an actual human being.

Neither was she at this stage quite certain that God was "up in the air"; for some days later she said: "I wish I were a fly; then I would fly up to God and see if it's true that He's up there." Neither was this doubt a result of the agnostic attitude of her parents; for she said also: "When everybody else believes that God is there, and we're the only ones who don't believe it, then we must be wrong." She is indeed at one with the family and says "we," but considers nevertheless that the others are right.

Strangers as a rule do not hesitate in the least to do their utmost to influence children in religious matters. For example, we once had a housemaid, who simultaneously sang naughty songs, which

fortunately R. could not understand, and taught her the Lord's Prayer and the Psalms, together with some comments on R.'s parents' point of view; and when R. was about seven years old, she said one day in a scared whisper to her grandmother: "I've learnt from Astrid what they say at bedtime: the Lord's Prayer. . . . It's best that mother doesn't hear it, for it's not certain she will like it." To such an extent are children at the mercy of indiscreet outsiders. Such influence, however, works less harm than might be feared. In any case, R.'s sound realism has never failed her. Thus when seven years old, she said: "Jesus can make water into wine. But what will He make bottles of?" An extremely harsh treatment of the wedding in Cana.

When R. was seven years and two months old, conversation happened to turn on the King's visit to the theatre. R. inquired whether he paid for his ticket; and I answered jokingly: "No, he can't afford it." R., however, corrected me, and said: "Yes, he can, for he's almost the richest man." I asked, "Who then is richer?" and R. replied: "Our Lord," betraying the fact that God was still in her opinion a human being, although, it is true, richer than the King. Thus it was even when R. was seven years and four months old and had attended school for a week. She had heard the story of the Creation and other Hebrew legends, and asked her mother for a fuller explanation. Her mother related that it is said that God created the first man out of the dust and breathed on him, so that he became alive; but hereto remarked R.: "No, no, where then does He (God) come from?" She grasped at once that the explana-

tion raised a new issue: the origin of God; and she also probably pictured the creating God in Adam's shape; in any case, there was no indication that she thought of Him otherwise. And, after all, is it not asserted in the Creation account itself that God *spoke* to Adam and Eve?

D. DEATH

One of the events which most often results in children hearing religious subjects mentioned, is death. *Where do the dead go?* It is only in exceptional cases that one is content with telling the child that the dead are buried or burnt, as a rule one adds that the dead are with God in heaven, a statement which the child interprets in a grossly animistic manner. Thus once when I was digging in my garden and by chance covered up a worm, a small boy who was watching me said: "Now it will go up to Our Lord." It had indeed been "buried" like the dead in the churchyard.

Both R. and S., but especially the former, had ample occasion to dwell on death, for two of their grandparents died within a few months of one another.

When R. was four years old, one of her grandfathers died, of whom she was very fond. This made, however, no immediate impression on her. Grandfather had only gone away, and we visited him no more at the hospital. But when we prepared to attend his funeral and R. was not allowed to accompany us, she demanded: "Why not? Does grandpa mind?" She regarded him as living and

able to object to her presence. This was confirmed some days later, when R. was playing, for she said: "I had an aunt. She was so dead. Oh, she was so dead! She screamed." Apparently the child had merely picked up the word "dead" without attaching the slightest meaning to it. She also subsequently discussed her grandfather in a manner which clearly showed that she regarded him as still living. For instance, one day in Frederiksberg Gardens, upon seeing a gentleman with bushy side-whiskers, she said: "He has whiskers like grandpa; they are big on both sides . . . you haven't whiskers like grandpa and uncle K. You have only that prickly thing" (moustache). Grandfather and her uncle were quite on the same plane. Nevertheless she had a glimmering of understanding, for shortly afterwards she said: "When you are run over by the train, then you're dead. Then you're buried, and then you have too much earth over you."

With events so closely succeeding one another as to be practically simultaneous, it seems impossible that such a contradiction could exist in the child's idea world. It is nevertheless a fact; the child finds no difficulty in believing both that the dead person is alive and that he has too much earth over him. And such a contradiction may continue in force for quite a long time.

When four years and two months old, R. made known a new, strange idea on death. She said: "I once knew a hobgoblin. It had no back, and no chest, and no stomach, and no arms and no legs; for it was dead, just like grandpa." In her laborious child language she expressed, as far as I can judge, that the

dead person had fallen to pieces, or, rather, had disappeared completely; for it is clearly only from lack of thoroughness that she omitted to mention the hobgoblin's head, as well as the rest of its body.

R. when four years and five months old expressed yet another theory, which, however, is perhaps due to the influence of environment. She said: "Grandfather could very well come up out of the grave, but he can't see. Dead people can't see." It is quite probable that some one has discussed the subject of resurrection with her, and that she has added of her own accord that dead people cannot see. All speculation, however, is unreliable on account of the child's rapidly changing ideas. Thus, a week later, R. said to her grandmother: "You mustn't talk to a dead person; I'm standing here ready to be buried."

R. at four years and seven months old showed by a question that she was just beginning to understand death a little. She asked me: "Will *you* die, Father?" When I replied: "Yes; but not before I grow old," she asked to make quite sure of the matter: "Will you grow old?" Upon my answering in the affirmative, she said anxiously: "Shall I grow old too?" The thought had occurred to her that death would also one day seize her, and she found it disagreeable. The thought was expressed with far greater force, however, when R. was four years and nine months old. She called out loudly to her mother, and said in a tearful voice: "I'm so afraid of being ill and having to go to hospital." Her mother asking: "Are you ill, then? Why do you say that?" R. replied: "No; but then I shall die." Big tears came to her eyes, and she added: "And supposing you others died."

Her mind clung tenaciously to the problem, and when four years and nine months old she inquired, not unreasonably: "Why must dead people have clothes on down in the earth; they don't need them." This might have indicated that she at last realised that the corpse down in the earth was lifeless. Nothing of the sort, however; for ten days later she asked: "Which side does grandfather lie on (in the coffin)?" This, of course, might mean that R. wished to know *how* they had placed her grandfather; but it could also mean, that she assumed he could turn over in his coffin, just as R. could turn over in her bed. The following story, told by R. when four years and ten months old, sounds utterly incredible, but is nevertheless literally true. She said: "Mrs. Rasmussen is dead. She stood telephoning to the man who is to put her in the ground." When *such* a thing can happen, so also can a corpse turn in its grave.

This remarkable misapprehension was occasioned by a burial. The person who telephoned was the deceased woman's daughter, whom R. confused with the deceased. Even when R.'s mother explained to her that a dead person cannot telephone, she still stuck to her opinion. She had herself seen the lady and heard her telephone. Therefore R. insisted with good reason: "Yes, *she* could."

The correctness of the view taken by me was further confirmed by R.'s remarks upon witnessing Mrs. Rasmussen's body being driven to the cemetery. R. saw the daughter walking behind the hearse, and said in this connection: "Mrs. R. walked; she was not in the big thing—you know, the one that's like a bed, the coffin." Mrs. R. thus attended her own

funeral, alive! A precisely corresponding impression was disclosed by S., four years and eight months old, when we one day visited the cemetery. She spoke of the dead down in the ground, as if they were living down there; and upon seeing a hole in the ground near a grave, she said: "That's how they get water"; but soon afterwards she added: "But they won't drink that water." The dead were apparently alive enough, but too proud to drink water which ran down through a hole in the ground.

In spite of their views on the matter, both children at this age were extremely afraid of death. When R. was four years and ten months old, we were passing an undertaker's shop, and she asked: "What are they, those long things there?" Upon my explaining they were coffins, she said: "Oh—h! are coffins like that? . . . Every single day I'm afraid of dying. . . . I wish I might never grow old, for then I'd never die, would I?" This latter thought arose because, as previously quoted, I told her, to reassure her, that I would not die before growing old. S., too, was afraid of death. At the age of four years and ten months, having heard that a little girl had died, she said: "What a shame for the little girl that she's dead. I'd be sorry too, if I were dead." About a month later she was, contrary to custom, afraid in the darkness and called out violently for me. Upon my going to her, she said: "I'm so afraid that Death will come at night and say that I shall be dead. I dream it every night." Suspecting that some one had given her a scare, I asked who had told her that Death comes at night, and S. declared: "The boys say it, and the girls too." After S. had been reassured, no signs of

this fear were subsequently observed in her. In the corresponding age, four years and eleven months, R., however, discovered a consolation in necessity. She said, more than a month before Christmas: "When we're dead, we get Christmas presents down in the ground, and lie eating them." It would be almost impossible for her animism to express itself more blatantly. Four days later she told her mother: "Now I'm standing here dead, waiting for the man to come and fetch me." Upon her mother declaring, that she could not stand if she were dead, she asked: "Do they fall over, then?"

A month or so later, when R. was about five years old, she inquired: "Do they never come up again, when they're buried?" Her mother replied: "No." R. continued: "It must be boring to lie down there in the ground so long. I won't ever die." She had not yet discarded the idea that the dead *live* in the ground. R.'s fear of death was once more apparent when she was five years and two months old, for she said: "I'm so afraid of dying when there's nobody there to see it."

At this age there arose by chance great confusion in her ideas on death, owing to an elder friend showing her a picture of "*Death.*" R. related: "I've seen a picture of 'Death.' No flesh at all!" The friend had also explained how Death went to work; and three months later, when R. was about five years and six months old, she inquired: "Is it always 'Death' who buries people?" Her mother said: "No, it's the clergyman and the grave-diggers. Death is not a person. When you are dead you can't move or talk, or feel anything." But R. hereto answered:

"Yes, *dead*.[1] But '*Death*' is a person. I've seen him myself in a picture at Busse's home. She said it was 'Death,' and that 'Death' buried people."

Since then R. has not mentioned Death; but when she was seven years and four months old, a lady died to whom she was much attached, and I seized the opportunity to ask her: "What does it mean, Mrs. Johansen being dead?" R. replied: "It means she's no longer alive." This answer shows that R. at that age understood that death is an end to life. But one cannot judge from her answer whether or not she believed that the dead person's "*soul*" continues to live in the grave. It is by no means unlikely, however, for this belief, in rudimentary form, is found even with highly civilised people. Many of our burial customs are based upon unconscious animism; for example, the custom of taking a last look down into the grave when saying farewell. Nay, merely the fact of *saying* farewell to the corpse presupposes a rudimentary animism, a belief that the soul of the deceased person remains in the corpse. The moment one is sure that the corpse is nothing but the physical remains of the deceased, burial customs become absolutely meaningless.

E. BIRTH, GROWTH, LIFE, ETC.

Just as the subject of death absorbs the child, so is it also deeply interested in the *origin of mankind*, both individual and racial. R. expressed this trait

[1] "Death" and "dead" are both expressed by the same word in Danish.

at a very early age. When four years and one month old, she inquired: "How are ladies made?" Her mother, startled at the question, inquired: "Why [do you ask]?" But R. had her good reason, and said: "Because there's meat [on ladies]." To make sure of her meaning, her mother demanded: "Which ladies?" and received the answer: "You and other ladies." It being thus placed beyond all doubt that what R. desired was general information relating to the origin of ladies, she received the unsatisfactory answer: "I don't know." R. being thus thrown back on her own resources remarked: "I think it's a 'meat-man'; don't you?" It is rather obscure what she meant, but I assume that she possessed a vague notion that ladies—in whom "meat" struck her as a salient characteristic—were manufactured by a person analogous to what she called a "meat-man."

It was not, however, the genesis of mankind alone that interested her, for at the age of four years and two months she asked: "Who made the birds?" and with this query, as with the former one, she showed that she regarded creation as a kind of *fashioning*. It is a clear analogy to the creation-legends of all savages and of ancient civilisations, in which the god or gods invariably "make" the created being. Thus, Marduk, the god of the Babylonians, fashioned persons of clay, just as a potter makes vessels. This conception, but in an embryonic form, is perhaps at the root of R.'s remark about the "meat-man."

Interest in the origin of the race is closely akin to the desire to understand the birth of the individual. S., when only three years and eight months old,

asked: "Mother, where did I come from?" and later: "Where do they get all these children from?" R. for her part displayed interest at the age of four years and ten months with the inquiry: "Where's the child [now] which the lady is going to have in the summer?" Her mother replied: "In the stomach of the lady." This evidently appeared to R. somewhat peculiar, for, after a pause for reflection, she asked: "Has she eaten it, then?" Her mother answered: "No"; but R. persisted: "Does it come out of the mouth?" Her mother, realising that there was no escape, at last answered: "No, it comes out of the tail."[1] This truthful explanation contented R., who, however, for her own satisfaction, carried the matter further, and said: "Then she sits on the chamber, and then it comes, and then it gets wet and has to have its feet dried."

Apart from R.'s concluding remarks this explanation of one of the great mysteries of life was correct; and it has not, as far as I have observed, had a harmful effect. R. is quite familiar with the fact that an infant is first of all inside its mother, and there is no sign at all of her finding the idea in the least degree shocking. S., who had also been told the truth about matters, likewise evinces no sign of uneasiness. One morning, for example, when lying in bed with me, she, five years and six months old, patted her chest and said: "I have a little child inside here, so very little, just like Solholm (her boy cousin); and when I'm twenty it will come out all at once." She beamed at the thought. It is difficult

[1] This expression was customarily used by the children to indicate the part in question.

for me to understand *why* a child should feel shocked. But unfortunately parents usually stuff their children with silly chatter about the stork bringing their small brothers and sisters, or other equally preposterous stories. Even when outsiders do not undermine the parental influence, there is always a great risk that the child itself will discover difficulties in false explanations of this kind, and thus undermine its faith in its parents' veracity.

That the birth of children is connected with the *marriage* of the parents is not understood at all by the child of the age under discussion. When four years and ten months old, R. said: "As soon as people are big they get married. . . . Where do they get married?" Upon receiving the reply: "At the Town Hall," she inquired: "Which floor?" Answer: "First floor." R.: "On the right or left?" and so on, utterly irrelevantly. A week later she asked: "Who shall I marry when I'm big?" Upon her mother replying: "I don't know," R. said: "Do you know whom I like? I like *Dine*; I shall live with her." Such was R.'s conception of marriage at that age.

When five years and six months old, she said to her mother: "Lea says that we *have* to marry. Is that true? . . . Then I'll have Father when you are dead. . . . No, I won't; I won't marry at all." Her mother inquired: "Why not?" and R. returned: "For then we should have to move, and that's such a nuisance."

The *origin of the race* was again the subject of inquiry when, four years and ten months old, R. said: "How are people made?" Upon receiving from her mother the answer: "They grow out of

their mothers"; she said: "Yes; but the big ones?" Her mother replied: "They have all been little at one time"; but R. objected: "Yes; but *before*, when there was nothing at all, how were they made then?" She meant of course: How were the first human beings created? S. also made similar inquiries at the same age. She demanded, for example: "Where did the first person come from?" and another day: "Mother, how did the very first child come?" But her ideas were somewhat confused, for she asked one day: "Where do horses come from?" Having found out that she meant the *first* horse, I replied: "That is difficult to say"; upon which S. remarked: "Do you know what I think? I think they buy them."

The child is also interested in *growth*. On her fourth birthday, R. inquired: "Where shall we grow? How do we grow?" Probably some one had pleased her by telling her she was growing big. The child, being so absorbed in its own growth, easily forgets that it is a characteristic common to all little ones. When four years and one month old, R., feeling specially friendly towards her little sister, said: "When I'm a big lady I [will] buy two dolls for little sister. I'll go in quite alone to buy them." She failed to realise that by that time S. also would be a "big lady."

When four years and four months old, R. said: "How fat I am" (it is her dearest wish to be so). Then she pointed to her forehead, and said: "How fat it is . . . How does it get fat?" She received the answer: "From the food you eat." But to this R. said: "That doesn't go up into the forehead." "Yes, it does," said her mother, "a little of it." But R. objected to this: "Yes; but you don't get fat, when

[only] a *little* of it goes up into the forehead." This illogical objection must, however, be interpreted in the light of the advice R. is constantly receiving that she cannot grow fat as long as she continues to eat so little. Taking this into consideration, her remark was well founded.

The child at this age regards its limbs as partly independent entities. R., when four years and one month old, had the misfortune to give a slight hiccup after dinner. I reproved her, and said that it did not sound nice; but R. proffered the excuse: "But it wasn't me. I didn't want to at all. It was my stomach that did it." A fortnight later she was again rather naughty and stamped a little with one foot; but immediately controlling herself she stamped again very gently, and said: "One leg is a little naughty." In this case, however, perhaps she deliberately made a scapegoat of the leg.

The child has quite its own impression of the form of activity called by adults *work*, for in the beginning everything is regarded by the child as *play*. Not until later does the child realise that there is a difference between its own, and adult, occupation. When four years old, R. said: "I'm going to play now. Are you going to school?" This is the first time she has given a hint that she realises that her play differs essentially from the adult's work. Some days later she emphasised her discovery, saying: "I shan't play to-day. I'm going to school." And she played at "school." When five years and three months old, she said: "You read [study] always, Father. It's uninteresting. It's much better to play." Here not only is the difference clearly recognised, but

she is conscious of having a totally other estimate than mine.

This estimate is a very important factor in our point of view on life, indeed it is the decisive one; and the child is in this respect, as in so many others, quite unlike the adult, a totally different being.

It is, of course, natural that whatever satisfies the child's immediate needs is valued highly; whereas, conversely, whatever does not correspond to a demand in the child is at a discount or not valued at all, however much significance we grown-ups attach to it. One must take this fact into account in all education both at home and at school, if one ever expects to catch and hold the child's interest.

Toys are, of course, greatly esteemed; indeed, the child is strongly tempted to appropriate whatever it lays hands on, because it does not as yet understand that thieving is wrong. The only condition is that the theft must not be observed. Thus it happened with R., when, four years old, she was visiting her little sister at the hospital. While there she was allowed to borrow some wooden bricks, and related to me afterwards: "When I'm with little sister I play with bricks. When there's nobody looking, I can take them." She would naturally not have told me such a thing, had she been aware of the incorrectness of taking the property of others; but she must have had some faint inkling of the sort since nobody was allowed to see her steal the bricks.

R. betrayed in an amusing manner her high valuation of toys when, four years and two months old, she received a present of some pictures of lions and elephants. She wrapped them up in paper, put them

on a pedestal, and said: "That Father must not touch, and Mother must not touch, and Nora (the maid) must not touch, and Baby must not touch." For the whole household the pictures were made *tabu*.

The child of this age does not at first understand the relative value of *money*; but is only interested in coins of small value, for which it can buy all it needs. R., when four years and two months old, said: "May I have a 10-Kroner,[1] then I can buy for a 10-Øre"; and when four years and eleven months old, S. being given the choice between a 1-Øre and a 5-Øre, chose the 1-Øre, the purchasing value of which she knew from experience.

I witnessed a laughable example of this difference in valuation when R. was four years and three months old. We were out walking and I pointed out to her a flying-machine high overhead, but apparently this marvel made no impression upon her, and she has never since mentioned it. She imagined, too, that the machine flew quite alone. But shortly afterwards she saw a hideously coloured picture, and said: "I wonder how they draw like that. Father, do you know how they do?" This interested her well enough, for she was keen on drawing and painting.

The child being to such a high degree the centre in its own idea world, anything having a connection with the child increases in value at the cost of everything else. Thus R., two years and four months old, seeing a picture and being told it was from America, asked instantly: "Where are the moccasins?" She had been sent a present of a pair of moccasins by her

[1] One Danish Krone is normally equivalent to about 1s. 1½d. and is divided into 100 Øre; 1 Øre is thus worth about ⅛d.

uncle in America, and she missed them in the picture. But when I explained: "They have not been drawn," R. said: "Where's the lady who made the moccasins?" It was of no use my replying that there was no room for her in the picture, for R. said: "She could very well have stood *there*," and pointed to a place near a little house in the picture. To such an extent was America for her the land from which the moccasins had come.

The relativity of values made a most striking reappearance when R. was five years and four months old. She said: "I am glad the cheese-monger has moved, for when Gerda [his daughter] was up in my room, she trod on my *Nipsenaal*[1] and broke it." That misfortune could not now be repeated.

Lack of understanding with regard to *length* and the *value of money* was plainly expressed when R., four years and ten months old, was playing "shops" with her mother. The latter asked: "How wide is this stuff?" and received the answer: "Eight miles." R.'s mother then asked: "How much are those patent shoes?" and the child replied: "One hundred thousand Kroner." But upon her mother remarking: "I cannot afford that," R. lowered the price, and said: "Then you can have it for three Øre." In these examples one observes clearly both her tendency to exaggeration and her failure to understand the enormous difference between the chosen values.

The *size of things* is also judged very indifferently by the kindergarten child. R., four years and two months old, wishing to demonstrate the size of a Copenhagen omnibus, said: "It was not *so* small

[1] See footnote, p. 94.

(holding her hands close together); but it was *so* big" (separating her hands to about twice the width of her body). And at the age of four years and four months, she remarked: "When I eat a lot I shall grow so very, very big, right up to the ceiling; and then I shall get all white on my hair" (from the white-wash).

CHAPTER III

A. THE CHILD'S DRAWING

JUST as we can become acquainted with the child's soul-life by listening attentively to its talk, so also we can collect information by observing its actions; and a highly interesting and abundant source are the child's drawings.

On this subject there have appeared, especially in recent years, some very valuable treatises, including those by Kerschensteiner[1] and by Meumann.[2]

Kerschensteiner is of the opinion that the child in its drawing passes through several stages of development, each of which merges smoothly into the next. The first he calls the "*Sketch-stage*," which is characterised by the fact that the child draws only the model's rational contents [*e.g.* nose, eyes, mouth, etc., in a face] without endowing them with formal qualities [*e.g.* the correct shape of the eyes]. The sketches are, therefore, according to him, a kind of "making notes" of the child's memory-pictures of "what it *knows* about an object."[3]

[1] Kerschensteiner, *Die Entwickelung der zeichnerischen Begabung.*

[2] E. Meumann, *Vorlesungen zur Einführung in die experimentelle Pädagogik*, vols. ii. and iii.

[3] *Ibid.* p. 162.

Meumann, on the contrary, calls the first stage of development the "Scribbling-stage"; because the child's drawings have no definite outline and derive form by means of erratic zigzagging to and fro of the pencil. According to him,[1] "The child in reality does not draw; it relates, describes, sums up, what it knows of its father [or another object] and his appearance; . . . and it is the important parts of the object which are seen most clearly by direct observation," *i.e.* the most conspicuous parts. This scribbling, he says, was formerly regarded as a series of aimless movements with the pencil, but in reality it represents a stage of development, and hence it is proved that there wanders before the eyes of the small artist an idea for an actual design (*graphischer Darstellung*). After this first stage follows what Kerschensteiner calls the "Sketch-stage." But little by little the child of its own accord changes its sketches. They become more and more detailed and begin to show the course of the lines in the object, as the latter appears when seen non-perspectively. Kerschensteiner calls this stage the "Silhouette-stage." Meumann, on the contrary, regards it as a transition period, and calls it "the stage of the emerging sense for line and form" which precedes the silhouette-stage. Both authorities, however, are agreed that very few children progress beyond the silhouette-stage without assistance. From the seventh to the eleventh year, in other words, until the child is ten years old, the "sketch" easily predominates — especially with girls, adds Kerschensteiner.[2] Girls' sketches are, in addition, more primitive than boys'.

[1] *Vorlesungen*, iii. p. 700.

[2] *Die Entwickelung*, p. 22.

Another peculiarity Kerschensteiner finds, is that children have very few memory-pictures at their disposal. More than 50 per cent. of six-year-olds produce no alternative "sketches" for different animals, but use the same one for all of them; indeed, about 10 per cent. even use the human sketch when drawing an animal. Of one hundred and thirty-eight six-year-old children, who were set to draw a horse, a dog, a cat, and a duck in the order named, not one used more than one "sketch."

My observations of my own children's drawings coincide on the whole with the experience of Kerschensteiner and Meumann, although not in every respect. But in order to give a complete presentation of the process of development, I will go a little outside the bounds of the kindergarten age, as far back as is possible.

R.'s first drawings have unfortunately not been

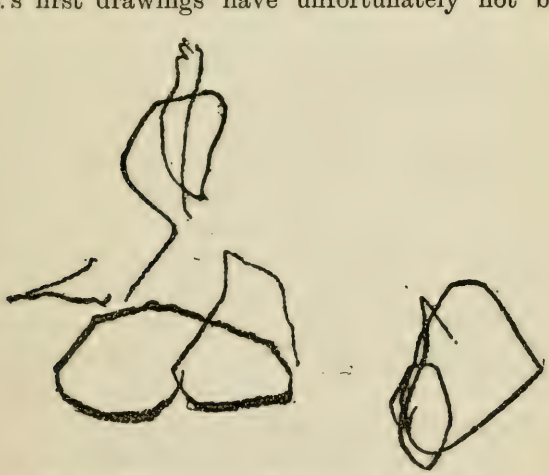

FIG. 1.—R.'s drawings when she was two years old.

preserved. They were executed when she was one year and six months old, and represented some object or other, *e.g.* dog, cat, or horse, but were "scribbling" pure and simple. Until the age of two years she drew, as Fig. 1 shows, without the least resemblance to the model, both as regards substance and form; for the figures are meant to represent "doves" and "a chicken."

S.'s first efforts—she was then about two years old—were also some quite haphazard lines. But it

FIG. 2.—S.'s first drawing.

was her *intention* to draw chickens; they are, as Fig. 2 shows, typical of Meumann's "Scribbling-stage."

When R. was two years and two months old her drawings began to resemble reality slightly. She put, for instance, a circle in the head of "a girl" and called it "eye," also her girls had both body and legs; but unfortunately no example is extant. When three years and three months old, she drew a "flower" and a "fish" as in Fig. 3; and there is already some substance besides a slight resemblance as regards form; but

FIG. 3.—R.'s drawing of a flower and a fish when she was three years and three months old.

the latter resemblance is probably due to the fact that such objects cannot be remembered otherwise than with respect to their form. Thus her "fish" shows only the shape of the fish, and the other drawing is almost entirely flower-pot.

S., when nearly three years old, began to approach the "Sketch-stage"; but her figures, however, were not always "shut." This is a very common peculi-

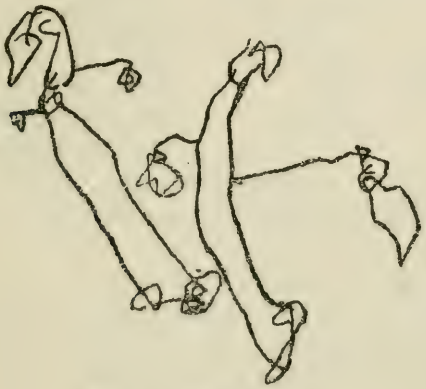

FIG. 4.—S., "Father."

arity with a child's early designs. The body of a man, for example, is open below, indeed occasionally the child draws the various parts of the body separately, side by side, here an eye, there a mouth, on one side a body, and so on. When about three years old, S. drew "Father" as in Fig. 4. Both figures represent "Father," and, as can be seen, S. at that time could only recollect hat, head—without details—arms, legs, and body, the latter, however, open below. An almost contemporaneous picture of "Mother" ex-

presses the same memory contents, but it had shut lines both for the upper part of the body, or bodice, and the lower part, or rather the skirt; the design, however, lacked feet.

At this period S. also drew a "cat," and this design, as shown in Fig. 5, is not a person-sketch in a horizontal position, but an independent scheme in which, with a little imagination can be recognised head, neck, body, and an enormous tail, but no limbs. The strokes farthest down on the right are "drawing mistakes," *i.e.* continuation of the body lines due to incomplete mastery over the pencil.

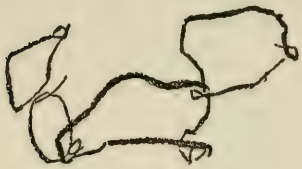

FIG. 5.—S., A cat.

Naturally it cannot be avoided that a mammal-sketch resembles to a certain extent a person-sketch with horizontal body; for, after all, the mammal and the human being are both constructed on the same principle. The crawling child is, in fact, a small mammal on all fours. But the child in drawing it is of course not aware of this relationship. The reason it uses a person-sketch in the drawing of a cat, is because it lacks a separate plan for the cat. But neither with R. nor with S. have I observed such use of the person-sketch.

Neither have R. and S. employed the same sketch for different animals, but have had a considerable number of plans at their disposal; but in this case it is difficult to know whether environment has exerted an enriching influence. When four years old R. drew

a "dog" as in Fig. 6. It has head with mouth and ear, body but no neck, four legs and an excessively hairy tail. S. at about the same age, four years and two months, drew a dog of a character totally different to her cat. Simultaneously her person-sketch improved considerably on her three-year-old standard. "Father" and "Mother" had not only head, body, and limbs, but acquired hair, eyes, nose, and mouth, while the clothes grew buttons. Nay, more, an attempt was

Fig. 6.—R., A dog.

even made to characterise each person by decorative means. Once, a short time after R., four years and three months old, had visited the Zoological Gardens, she drew a "tiger" of an entirely different scheme to her dog.

But how shall one interpret these "scribblings" and "sketches"? Is it correct that they are only accounts and repetitions of what the child knows, or are they "drawings"?

As already quoted, Meumann, in his *Vorlesungen*,[1]

[1] Vol. iii. p. 700.

has arrived at the conclusion that the child's scribbling is a proof of the existence of a dim conception of real drawing in the child's brain, although he says at the same place—and with this Kerschensteiner agrees—that the child does not really draw, but relates, describes, enumerates qualities. But in this question the two famous students of children look at the matter far too much from the adult's point of view. That the child's "sketches," with their paucity of details and poverty of likeness to the model, resemble the adult's simplified, outline sketches cannot indeed be denied. But the point is not how the adults—teacher, artist, psychologist — look at the matter. The question is: how does the *child* estimate its drawings?

When the adult makes a sketch he is conscious that it does not resemble, that it simplifies and gives but a glimpse of what is essential, or too intricate in the original to be understood—that is assuming the sketch maintains correct relative proportions. The adult's sketch therefore is drawn consciously with a definite aim in view. Quite otherwise is it with the child. Its "sketches" are only *apparently* outlines; in the child's estimation they contain everything possible. The child regards its drawings as graphic reproductions closely resembling the original. Indeed, the child is even more pleased with its sketches than the adult with his most elaborate drawings. For the adult is much too critical not to recognise how greatly his drawings fall short of reality; to the Kindergarten child, especially in the first year, the "sketch" is far more identical with reality.

I do not, of course, base this assumption on the fact that the child always talks of "drawing," and not of writing, enumerating, etc.; for in spite of that, its drawing could very well be writing, owing to the child using the word "draw" in another meaning than the adult.

On the contrary, I base my conclusion on the great pleasure the child exhibits in its designs and on the imaginative manner in which it imbues them with life. (Presumably no one will believe that the child, in the event of its drawing *consciously*, would or could "enumerate" its father's—or the dog's—most striking characteristics.) For the child, the drawing is at a very early period, to wit, while in its most pronounced sketch-stage, something living, or, if deemed desirable, just on the point of coming to life.

Thus, for example, R., when about three years old, having drawn a picture of a wolf while I stood shaving, endeavoured time after time to make me afraid by moving the terror-inspiring animal quickly towards my face. Is it likely she would have behaved in such a manner if she had considered the drawing to be an enumeration of the wolf's qualities? Again, when R., three years and six months old, saw in Hans Andersen's *Fairy Tales* the picture of a man whose head was stuck fast between some posts, she said to her mother: "Mother, please take it out." The latter, it is true, was not a child's sketch-design, but the incident nevertheless exemplifies the child's habit of giving life to pictures. I observed something similar with a three-year-old girl who was looking at a coloured design of a pierrot. She felt the picture very carefully and tried to take hold of the pierrot's

hand. Finally, S., five years and eight months old, having one day drawn the accompanying Fig. 7 of a lady, placed the picture in the window. Upon my inquiring why she put the picture there, she answered, "To make it look nice" (*i.e.* by way of decorating the window). But the child does not decorate with an "enumeration" of qualities; on the contrary, she *does* decorate with a little "work of art."

FIG. 7.—S., A lady.

Apart, however, from the foregoing reasons I base my conclusion on the fact that the child one fine day abruptly and resentfully discontinues its drawing because it "is not like," or because "I can't," or some such objection. From this it follows indirectly that, previous to this occurrence the child had approved of its sketches and regarded them as drawings resembling the model. If the child's aim were merely to write about the object, it would have no reason for resentment, as far as the contents of the drawings are concerned, for in this respect the child makes steady progress. The crisis comes therefore when the child, having gradually acquired an eye for form, discovers itself unable to reproduce the model satisfactorily, so that the drawing is sufficiently "like."

One of S.'s sketches, however, may perhaps be regarded as not fitting in with the view I have expressed. One day, when three years old, she drew a lady for me whilst I was sitting opposite to her; and she did this in such a manner that the lady's head

was pointing towards S. and her legs towards me. In other words, S. drew the figure upside down; and this fact could undoubtedly indicate that she did not actually draw but merely gave me information as to how a lady looks. But it can also mean that S. wished to make it easier for me to see her lady. In spite of this example, I therefore consider myself justified in maintaining the view that the child's drawings are regarded by the child as drawings, even if to us grown-ups they appear to be "scribblings" or "sketches."

The individual desire to draw naturally varies widely, being presumably dependent on ability, general conditions being equal. S., for example, has not been very keen on drawing, while R., right from the age of one year and six months, has been intensely interested in the subject, and still, at the age of nine years, draws regularly.

R.'s pictures have also been consistently superior to S.'s at the corresponding ages. This fact, however, apart from difference in talent, may be due also to extra practice; but this advantage, again, might well be regarded as neutralised by the fact that S. undoubtedly learns much from the productions of a sister three years her senior.

The difference between R.'s and S.'s efforts can be seen, for example, by comparing S.'s representations of "Father and Mother" (Fig. 8), drawn when she was four years and two months old, with R.'s sketches of a "Man" and a "Lady," produced at the age of three years and six months. S.'s drawings are superior only in the decorative department, whilst R.'s are executed much more fully, *e.g.* the limbs are

far more detailed and placed more correctly than in her sister's designs.

FIG. 8.—S., Father and Mother.

Progress in R.'s representations of persons expressed itself in more and more detail. Her figures developed hair and ears, and later, boots on the legs; following this she began to draw faces in profile with nose, mouth and chin, also an unmistakable neck. But this progress is perhaps due to adult influence; for R. used to ask all those with whom she came in contact, including the housemaid, to draw for her.

When it comes to drawing figures *en masse* it cannot be regarded as unreasonable that the child's attention slackens and it recollects fewer details. This was shown, for instance, when R. drew "a house where we shall live in the summer, Father, Mother, R., and Miss D. (housemaid)." Some difficulty was

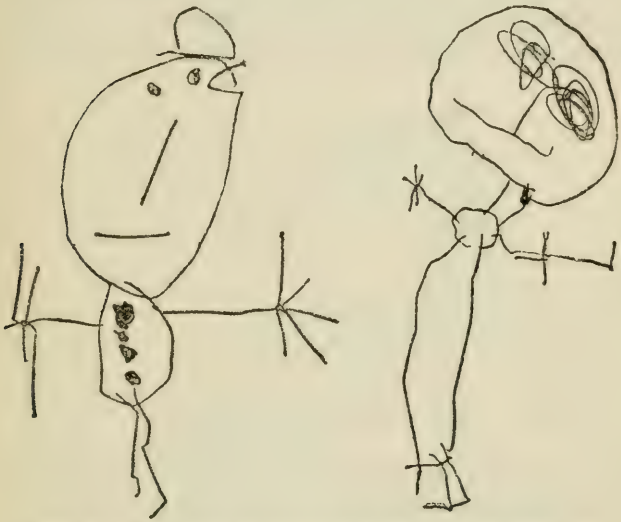

FIG. 9.—Figures of a man and a lady, drawn by R. when three and a half years old.

experienced in differentiating the persons, as the child at this stage draws children and adults in the same manner, being content at most with indicating the sex. Not even the latter, however, was expressed in this instance; as for the house it was a typical "sketch," expressing merely what R. knew of a house. There was a chimney which smoked, roof with

dormer-windows, frontage with windows and a door, and there right at the bottom the fortunate people destined to live in the house, in the act of taking possession.

That the child's sketches are a fruit of its knowledge and not even the result of a kind of mental vision is proved by the accompanying Fig. 10, portraying "a man on a camel." R. has drawn a mammal-sketch and a man astride of the animal; she *knows*

Fig. 10.—R., A man on a camel.

that riders do this, but it is obvious enough that she has not seen it in her mind's eye when drawing it.

One result of the child's picture being drawn from memory is that it often draws what cannot be seen, *e.g.* (in Fig. 10) both the man's legs; or both eyes in a profile picture. Similarly when R., about four years and six months old, made a sketch of her little sister in her cradle, the infant, in order that her presence should not be overlooked, was depicted as lying on top of the coverings. In reality she was lying *beneath* the coverings, and was not visible at all.

At the age of four years and six months, R. could characterise a dog quite well, as is shown in Fig. 11, which was not a copy. The picture represents, namely, "a dog that barked at R. yesterday." She had also at this age special "sketches" for ducks and chickens, bearing not the least resemblance to the mammal-sketch; and she could also distinguish the chief characteristics of the horse and the cockerel.

Fig. 11.—R., A dog barking.

On the other hand, S.'s first drawings of birds were palpably mammal-sketches.

Influence from environment is, however, a factor always to be taken into account in connection with the child's evolution; but it does not exert sufficient influence to displace the child from its normal stage of development, although able to accelerate the latter to a certain extent.

I remarked an instance of the effect on R. of outside influence when she was four years and three months old. She had once seen her grandmother draw a hand by placing her hand flat on a piece of paper and pencilling round it; and one day R., taking advantage of this hint, requested me to lay my

head on the paper. No sooner said than done. I laid my head on the block and R. drew round it. But the result was that there was no room left for body and limbs; and for some time afterwards, R.'s men were all given relatively enormous heads, because she did not understand how to draw the limbs in proportion. R., however, also employed the method in more profitable ways, as, for example, when she drew, at the age of four years and ten months, a book by pencilling round a book's edges.

Another result due presumably to assistance from environment was that R. began at a very early age to evince a sense for the right direction of lines, or, as Meumann puts it, to progress to "the stage of the awakening line and form feeling."

The first time I noticed this fact was in the accompanying Fig. 12, of two ladies walking. True, they have terrifying hands, and the faces are not very successful profiles; but in the drawing of the bodies there is undeniably a sense for delineation, an approximation to the silhouette. R. was four years and five months old when she drew these figures.

This sense for form, moreover, did not disappear, but developed further. When about five years old, R. drew, for example, a picture of a man which in several respects showed more clearly the stamp of form than her two ladies. Not only the outlines of his face, chest, and back, but the trousers also, and to a certain extent the boots, were correctly reproduced. As regards composition the figure bore witness to considerable progress, for the man had both eyes,

nose, mouth, ear, and hair, besides wearing a smart hat, and having, in addition, neck, body, an arm and a

Fig. 12.—R., Two ladies.

leg. On the other hand, the sole details given of the clothes were three buttons.

Good line work was, however, a still more striking characteristic in the lady (Fig. 13), drawn by R. when five years and one month old. This lady is scarcely representative at all of the typical "sketch," if we

except the eye and hand; the rest is an attempt at linear reproduction.

FIG. 13.—R., A lady.

But at the same time as the child's drawings of persons show comparatively advanced progress, the "sketch" still predominates completely in connection with other models. In the accompanying Fig. 14 of a pig, line plays a very unimportant part except in the moderately correct back profile; all the rest is undeniably "sketch."

The child's drawings in this transition-period to a great extent call to mind the artistic efforts of savages. It can scarcely be denied that R.'s pictures of the pig and the barking dog resemble in essential respects the Australian aboriginal drawings of a man and

FIG. 14.—R., A pig.

a kangaroo (Figs. 15 and 16). One can perhaps assert, as Meumann does, that the Australian designs exhibit far surer linear treatment and reproduce the animal action better than the child's drawings; but to me it seems that this very fact emphasises the fact that savages, in spite of greater technical perfection

FIG. 15.

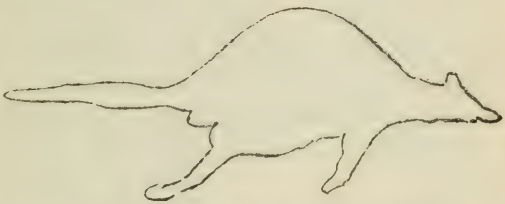

FIG. 16.

Australian aboriginal drawings of a man and a kangaroo.—JUNG.

and sense for art, have never succeeded in advancing beyond the "sketch-stage."

Australian drawings of this description have been found scratched on the bark of trees and on the walls of cliffs; but occasionally they are depicted by means of an interior border of black, painted over with red, yellow, or white, similar to the manner in which children paint. Indeed, one finds in Australia many hand drawings or paintings executed with the most childlike technique. Either the Australian native has blackened his hand and then pressed it against a light cliff wall, just as a child chalks its hand and presses it upon the surface of a slate, or he has laid his hand flat on the cliff wall and thereafter squirted round it with some colouring matter or other, so that the hand stands out stone-coloured inside the red or yellow squirted round it on the stone. But this

method of procedure, it is clear, is in principle the same as the child employs when it lays one hand flat on the paper and pencils round the edge with the other.

As regards composition the Australian designs are far inferior to those executed by R. in her fifth year. In the kangaroo there is no trace of an eye, and in the man there is lacking not only nose, but mouth, ear, hair, and fingers. Artistically viewed, the native drawings are superior, intellectually the child's.

When R. was five years and four months old, I observed her for the first time trying to *copy* a picture, although she had never seen anyone else do so. The result, however, was in no respects better than her "memory-pictures," and is merely of interest as an example of independent initiative. The attempt was not repeated at the time; on the contrary, her output of memory-pictures increased considerably. She drew a dog, dove, duck, swan, stork, plaice, etc., and obviously made earnest attempts to endow the animals with their special characteristics. On the other hand her first preserved picture of a tree (Fig. 17) is very inferior. She drew it at the age of five years and ten months, contemporaneously with birds, a bag, a box, and others. The design is very typical of a child's first attempt at tree drawing.

FIG. 17.—R., A tree.

There are trunk and crown, which especially attract attention, but in this case no roots, which often appear in the tree pictures, although they cannot be seen in the model. The child, however, *knows* that they are there, and consequently must have them in the picture.

At this stage of development the child has no sense of perspective; at all events there is no evidence of such in the designs, whatever attempts may have been made in that respect.

Thus it was also with R.'s drawing (Fig. 18), illustrating a story of her own composition. The drawing is to be "read" from the top downwards, and shows: "A man who won't move out of the way of a motor-car. Then a bicycle comes along and runs him over. Below him stands a man [the big figure] who is astonished that he won't move. Inside the room [the triangle, perhaps meant to represent a bow-window] stands a man looking on. And in the room is a table and chair." Considerable imagination is displayed both in the story and in the drawing; but the picture has, in comparison with earlier drawings, retrograded both with regard to form and to the composition of the separate

FIG. 18.
R., A story.

persons. "The story" which she was illustrating had absorbed her interest at the expense of the separate figures. Worthy of attention also is the placing of the man at the window. The window is not seen, but the man's position is indicated by the fact that he projects high up in the corner. The chairs too are typically reproduced; for one looks, regardless of perspective and point of view, squarely towards each chair's front, almost as if the observer were sitting in the middle of the table.

One day, when R. was six years old, she drew "Father" and "Mother" without displaying any progress worthy of mention. It occurred to me to ask her: "Can you draw that [ivy] leaf there?" R. looked at the leaf, and said: "Yes, if I look at it carefully," and thereafter drew Fig. 19, which on the right side exhibits the ivy leaf's chief marginal characteristics, except for having a point too much, but on the left side lacks finish near the base. The ribs of the leaf she has omitted, but, on the contrary, has remarked the deep indentation where the stalk is attached.

FIG. 19.—R., An ivy leaf.

I tried afterwards to see how far I could improve her drawing by analysing the leaf, and said, therefore, pointing to the leaf: "Look, there is a line [the rib] in the middle," and drew it; I then showed her bit by bit the separate parts of the surface of the leaf, at the same time drawing them, first the ribs and afterwards the outline. Following this, R. drew a

fresh picture. It was practically correct as regards the form, only the front [lowest] part of the leaf was disproportionately large. She had succeeded as regards symmetry, but on the other hand had not seen [*i.e.* not understood] that the ribs radiated from one point. Another repetition of the drawing produced the same result.

About a fortnight later, after we had been "playing" with matches, I took a match-box, placed a small cylindrical box on top of it, and asked: "Can you draw that?" R. drew the accompanying Fig. 20, but said: "It's more like a table with flaps." It is clear that she could not understand the construction of the boxes, but drew on the whole memory-pictures; yet the surface of the cylinder is on the whole remarkably correct. On the other hand, she *could* understand that her drawing of the match-box was faulty.

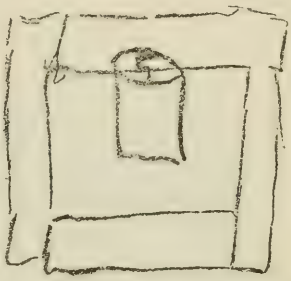

FIG. 20.—R., A cylindrical box standing on a match-box.

I tried now whether she could be advanced further, and explained to her how the lines run, and drew a perspectively correct picture of the boxes. Thereafter R. drew a fresh picture—but *without looking at the object.* It was a memory-picture of my drawing she made. She, however, had caught sight of the number 517 on the lid of the box; and there was progress in construction.

In both these attempts I saw that the child does

not observe the object when drawing unless exhorted to do so, but on the contrary produces a memory-picture. The closer fidelity to nature of the second picture is due entirely to the fact that it is easier to copy a drawing from memory than to reproduce a direct impression of the model.

Of her own accord R., when six years and six months old, drew the accompanying picture of a tea-service (Fig. 21). It is easy to see the mixing together

FIG. 21.—R., A tea-service.

of direct observation and previously acquired knowledge. The latter leads her, after the manner of children, to draw the saucers quite round—through the cups—and to let the stem of the sugar basin meet the circumference of its base instead of the middle. The shapes, including the angles, are quite well grasped, although, on the contrary, there is no recognition of perspective.

When R. was seven years and one month old, I received a present of a cylindrical waste-paper basket. R. placed it on my work-table in order to draw it;

and the accompanying Fig. 22 bears witness that she has to some extent understood the course of the lines, for she has given a curve both to the base line and to the two lines bounding the decorative rosettes. On the other hand she has, by virtue of her knowledge, drawn the top edge circular. In reality she could see only the front part of the top edge, appearing as a straight line. This fact, however, a child could scarcely be expected to discover; for it is difficult to recognise unless one looks at the edge with one eye closed. Her interpretation is therefore entirely satisfactory for her age, but of course it would require a series of experiments to ascertain at what age one could *normally* expect a drawing similar to R.'s.

Fig. 22.—R., A waste-paper basket.

A month later R. received a visit from her grandmother. The latter drew trees for R. and explained to her that the farther the trees were distant the smaller they appeared, a peculiarity which R. had remarked long before and to which she was therefore

quite accustomed. The child responded to this influence by drawing a "perspective" picture of a row of trees, in which the perspective relationship from the third tree onwards was remarkably good. Nevertheless there was no improvement in this respect in her spontaneous drawing.

When R. was seven years and four months old, I

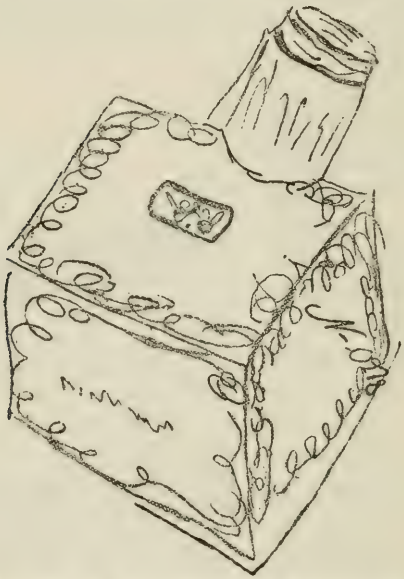

Fig. 23.—R., A cylinder on an envelope-box.

made a new experiment with drawing from the model. I placed a cylinder on top of an envelope-box, which lay on its side, in such a way that the cylinder stood nearest the foremost corner, with its axis lying slightly to one side of the corner's vertical edge. R. drew the accompanying Fig. 23, in which the box is

really well reproduced. But the cylinder, which taken by itself is well constructed, stands right back on the hindmost edge of the box and is very crooked.

I pointed out the mistake with the cylinder and encouraged R. to try once more. She then drew a fresh figure, in which the cylinder stood correctly in its relationship to corner and edge, but it was still rather crooked. In order to control her earlier drawing of my waste-paper basket I thereupon told her to draw it; but, apart from a slight improvement in the reproduction of the cylinder's curves, her design was essentially the same as the previous one. Here again she did not see the top edge correctly, but drew an oval from memory. On this occasion, however, I explained to her how she really "saw" the top, after which she succeeded in drawing it perfectly.

During the period in which these experiments with model-drawing were being carried out, R. continued her memory-pictures of her own accord, a confirmation of the well-known maxim that the child does not permit itself to be displaced from its normal stage of development. That which the child does spontaneously is its own work; but it may nevertheless very well be the case that experiments with a method superior to the child's own standard may accelerate its development. R.'s progress at this time expressed itself mainly in an increasing number of memory-types. On a single piece of paper she on one occasion drew pictures of a horse, deer, rat, "bird," duck with drake and ducklings, swan, hen with cock and chickens, stork, sow, and—at the bottom of the paper—a goat with its entire family.

This really imposing array of types, in addition to

many others, is, however, due largely to my having, in the course of time, so often drawn things for her, not to mention the possible effect of her so often seeing pictures in a zoological book. No great influence from the latter, however, has been traced. Most frequently of all she depicts the animals she has seen others draw first. For this reason her designs at each stage are strongly influenced by models drawn for her by persons in her environment. In the accompanying Fig. 24, from the time when R. was six years and four months old, the housemaid's influence was in the ascendant. The picture shows "Father and Mother. Father kicks at a dog." This explanation is, however, certainly a *result* of the dog having been drawn by chance just in front of "Father's" leg.

FIG. 24.—R., Father and Mother. Father kicks at a dog.

A typical instance of the child's lack of perspective sense is shown in Fig. 25 of a dining-room, which R., seven years old, drew one day when confined to her bed [from which she could not see the dining-room]. On the window-sill stands a row of flowers, with the bottoms of the flower-pots drawn quite circular, in spite of the fact that only the foremost part of the base-curve is visible to the eye. Above the flowers hangs a shaded electric lamp, as if situated in the

middle of the window, although the model itself was suspended over the table. The top of the latter is

FIG. 25.—R., A dining-room.

seen from above, but the legs are seen from the side; while the chair and the sofa, together with the persons, are deposited on the floor and viewed from the ceiling. The sole indication of perspective is found in the chair on the right; but this is possibly a fluke.

At the age of seven years, R. was no longer so

Fig. 26.—R., A dancing couple.

stereotyped in her pictures of persons. In the above drawing of a dancing couple, the lady is depicted from behind and holds her arms above her head, as so often seen by R. on occasions when the children take part in the ballet at the dancing academy.

A very typical example of child illustration is shown in Fig. 27 of "A house at a corner. . . . On the right, a tree and chairs. There ought to be a table, but there was no room. . . . Road with cart and people." As will be seen, not only is the front

of the house to be seen, but also the two gables, while the tree is in a high degree symbolical. Of the chairs but a portion of the backs is visible, and for the table there was "no room," because R. did not understand that one object can "cut off" parts of another. The details in this illustration, as in so

FIG. 27.—R., A house at a corner.

many others, have suffered because of her interest in the subject as a whole.

An exception to the general run of R.'s drawings is reproduced in Fig. 28, a decorative table-centre executed at the age of seven years and two months. I have not observed her decorate any article before, if we except some attempts at "ornamenting" ladies' dresses. In the case of the table-centre, she has, extraordinary to relate, expressed her sense of the

fact that rhythm, the regular repetition of the motive, is essential in decoration. This is all the more

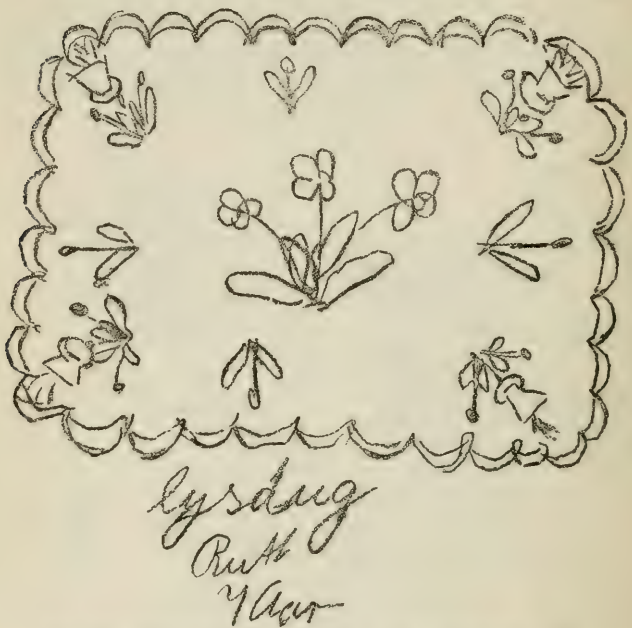

Fig. 28.—Table-centre drawn by R. when seven years old.

remarkable on account of our having scarcely ever possessed a decorated object in the house.

The final turn taken by R.'s spontaneous drawing before she went to school were attempts to reproduce pictures from the geology she was often given to look at. She drew of her own accord, seven years and four months old, among other birds, the accompanying picture of a golden plover (Fig. 29), and this method of drawing, once discovered, soon absorbed her

attention in the period that followed. At the same time the effects of our experiments in drawing direct from the model were still noticeable. At the age of seven years and four months, she drew quite of her own accord, whilst I was in another room, the accompanying Fig. 30 of a vase. There is very little fault to be found with the design, apart from it being a trifle low in proportion to its breadth. It is also extraordinarily near to being symmetrical, while both the oval opening at the top and the curve of the base are correctly apprehended.

Fig. 29.—R., A golden plover.

Fig. 30.—R., A vase.

This sums up the extent of R.'s progress before commencing school; and although by strategy she could be tempted into drawing direct from the model and was not completely without talent in apprehending and reproducing a simple object, her purely spontaneous drawings were nevertheless either "silhouettes" or "sketches." She made greatest progress in drawing persons — presumably on account of especially strong influence—and her human figures at the close of the period were undeniable silhouettes, as, for instance,

the picture of a man in Fig. 31. But her designs of animals, on the other hand, were merely sketches;

FIG. 31.—R., A man.

her pictures of plants were sketches also, and very poor ones at that.

Needless to say there is more to be ascertained from a child's pictures than its artistic ability. The compositional nature of the drawings shows the characteristics in things that make the deepest impressions on the child and rouse its interest. It is these, in fact, that the child draws.

As might be expected, it is first and foremost mankind in which the child is interested, and mankind in the beginning is represented by Father, Mother, and

the other persons in the family or household; later on comes interest for the more abstract qualities in man, woman, child.

In its pictures of persons the child at first reproduces only head, body, and limbs, occasionally with each item drawn separately. Later, eyes, nose, and mouth are added, hair and ears appearing later still. And in the same manner as the details of the head are gradually added, so it is with the details of the limbs or clothing, such as fingers, buttons, and boots. The number of fingers, however, in the beginning is quite a matter of chance, and as regards the number of buttons, R. at any rate has not yet borrowed from reality, but sticks them on at random.

The child is also at a comparatively early age interested in animals, but as a rule domestic animals predominate: dog, horse, cat, pig, and "bird" [*i.e.* sparrow]. Wild animals are seen by the child far too rarely to come into consideration, apart, of course, from exceptional cases.

The child evinces far less interest in plants, and makes no attempt to draw them until a much later period. Even then it only produces sketch-pictures of trees or plants in pots. In the case of the tree it is at first regarded merely as a trunk and a crown; but later on branches and leaves are added. The root often appears in the drawing owing to the child knowing that the trees have roots.

With regard to technique at the time of commencing school there is little doubt that the prevailing standard in practically all children is the "sketch" stage. In the event of the child having received much assistance, and at the same time being naturally

gifted, it can very well have made exceptional progress and have arrived at the "silhouette-stage"; but it is a question, however, whether it would not relapse completely into the sketch-stage again, if left at this juncture completely to its own devices. For experience in all branches of education indicates that only through constant influence can the child be brought to express itself otherwise than in accordance with its normal stage of development. As far as R. is concerned she undoubtedly retrograded; for at the age of seven years and five months she drew a picture of a person which was "sketch" pure and simple. If, therefore, the child's development has been forced by artificial means, it ends by returning to its "nature." In education, therefore, no attempt should be made to hasten progress, but on the contrary the child should be assisted to express itself as intensively as possible in accordance with its normal stage of development. If the child draws "sketches" spontaneously, the help shall consist in improving the sketches as regards their contents, *e.g.* by asking the child whether it has not omitted something. If the child, however, is beginning to make "silhouettes," the time has come to help it to improve its delineation and, in addition, gradually, little by little, encourage it to pay more attention to the models. If, for instance, the aim is to draw a dog, the child should be led to observe a dog when opportunity occurs, and so learn the lines of the head. As an aid to memory the child may also sketch the outline in the air.

In the silhouette-stage, just as much as in the sketch-stage, the child calls to mind the savage.

FIG. 32.—Bushman drawings (Bahnson).

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Savages with regard to art are not all at the same stage of development. For example, the Australian natives stand very low in the scale, while the South African bushmen, especially when taking into account their general standard of civilisation, are highly talented draughtsmen. With a hard, sharp stone they scratch pictures of animals on the walls of the cliffs, so that the picture stands out in a lighter colour against the dark cliff background; *vide* Fig. 32, a reproduction of a photograph in the Ethnological Museum, Copenhagen. When the cliff is light, they paint the pictures in pigments of various colours, *e.g.* red, white, black, or yellow. On occasions there have been found several thousands of designs of this character in one single locality, and they exist in all districts where the bushmen dwell or have dwelt. But although the drawing materials are different to those used by the child, the drawing technique is beyond question "childlike," the pictures being pronounced "silhouettes," drawn from memory with mistakes similar to those in the child's silhouettes. Take, for example, the figure reproduced. In the case both of the antelope and of the rhinoceros the ears and nose are drawn on the same plane, as also are the beasts' legs, excepting the left foreleg of the rhinoceros. The bushman's animal-pictures are analogous to the child's memory-silhouettes, although possibly the bushman is just beginning to develop a vague sense for perspective foreshortening. The fact, however, must not be lost sight of, that it is probably only the most artistically gifted bushman whose talent has found an opportunity of expressing itself in permanent material; whereas civilised children

without exception *all* make drawings, although but a very small proportion have artistic talent. In the case of artistically talented children there will probably be found *also*, and at an early age, touches of perspective in their silhouette drawings; and when one fine day the child nears the end of its silhouette-stage it betrays itself by these very same touches of perspective, in the form of foreshortening

FIG. 33.—A decorative Egyptian drawing.

or shading. Neither, therefore, is the savage's superior technique in the silhouette-stage a refutation, as Meumann believes, of the theory that the child's development is analogous with man's. Even highly cultured races display "childlike" traits. In the accompanying Fig. 33, exhibiting a decorative Egyptian design, there is a striking combination of first-class line work, artistic feeling, and inferior recollection of the original. Although the faces are viewed *en profile*, the eyes are drawn *en face*; the

chest is seen from the front, but the legs from the side, and both hands on either figure are left hands. These mistakes are, needless to say, not intentional, but are due to the fact that the Egyptians, in spite of their high artistic standard, had not yet left behind faults connected with memory-pictures.

B. THE CHILD'S APPREHENSION OF PICTURES

In this connection it is natural to discuss the manner in which the child *regards* pictures; what it perceives, and for what it lacks perception. For in this respect also it differs totally from the adult.

At first the child announces merely the name of the thing it sees; from which one may safely conclude that the child sees only objects and not actions; also that it has no perception for the emotional in pictures. Still less, of course, can it see "artistically."

When S. was two years and eleven months old, she pointed to a picture in a newspaper and said "man"; it was the first time she had described a picture in any other manner than "wow-wow." When she was three years and six months old and saw three pictures in a zoology, she said merely: "Three animals." She stated a fact. When about four years old she described a picture thus: "A boy and a man, a cart, a basket." This is, as far as apprehension is concerned, quite analogous with the "sketch" drawings.

R. also, in the same way as S., contented herself, when four years and one month old, with pointing out the separate objects in a picture: *e.g.* "Boy, girl, man, lady, umbrella, stick, apple, tree, etc." But of

a lady in an apple tree from whose apron some apples had fallen, she said: "She is picking apples; why does she look down?" In other words, she observed two *actions*: that the lady in the picture was picking apples, and that she looked downwards. A month later she again showed that she could understand what "happened" in a picture. She related: "The little girl is putting a dog in a toy cart—The little children dance—She is pulling a cart—Those are ladies and gentlemen."

When four years and nine months old, R. saw a print of "Joseph and Potiphar's wife," which, however, she misunderstood slightly, for she said: "Going to have bath"; and of another picture "Liegendes Mädchen," she said: "Come and look. She's thrown off all the bedclothes, and has one foot on the mattress." She thus observed not only the persons, but also their actions, even though she misunderstood the significance of the pictures.

Gradually as the child develops, it is able to observe more and more details in a picture, although its mode of interpretation does not necessarily change much. When five years and nine months old, R. desired, in connection with some experiments (of which more later) to describe pictures, and I therefore allowed her to do so, choosing for the purpose a magazine print of Lundbye's "Interior of a Cow-stall." I said: "Now tell me everything you can see"; and R. related: "There's a cock. What are those? Are they two pigeons? Cows, wheel-barrow. Corn. Loft and board. Trees outside the hen-coop, or cow-stall, or whatever it's called. Door on the house. Little pigeon [she touched it]. A board outside. And a

rake, or whatever it's called [a hay fork]. A stick and a little tub. The cow has horns. And there's a little hole in the wall. And a little window, or is it a piece of wood on the wall [by the door]? And the cow has string or something on its nose [cow's halter]. Oh, what an ugly mouth it has. Chopped-up firewood. What's that there? [by the head of the calf]. There's a piece of wood in the corner. And then there's a little tree over by the door [on the left]. Then there's something else I don't know. I wonder what it is? Those black things there [by the door]. Then there are two more holes. It must be an old house. There, now I think we've finished that picture."

The entire description is little more than a list of objects coloured slightly with her criticism, "Oh, what an ugly mouth it has!" But she has been extremely *thorough*; and at the end there is a clear example of logical reasoning, namely, in her deduction that the house must be old. By practice and a little guidance the child can, as will be shown later, be taught to observe and describe better; but a relapse to the normal stage of development will probably follow as soon as the assistance is withdrawn.

In order to understand and judge pictures, it is among other things important that the child should know something of perspective and have a sense for the æsthetic. Both of these characteristics, however, are observed quite early in children.

When four years old, R. was walking with me. It had snowed the previous night, and she remarked: "Snow. It's so pretty!" Hers was pure æsthetic feeling, called forth by the newly fallen snow. The

following example is probably also an æsthetical outburst on her part. At the age of four years and one month, she asked a charwoman: "What is a princess?" and receiving the answer: "The finest lady in the land," she pursued the matter further, and inquired: "How many colours has she?" The meaning of this is almost certainly that, in R.'s estimation, a lady with many colours (in her clothes) is beautifully dressed. Allowing that this conclusion is a little doubtful, it is at all events beyond dispute that she displayed a sense for beauty at the age of four years and three months when she said: "Can't I have a *Nipsenaal*[1] with a bird on, it looks so pretty. I should like a red one." Perhaps also it was an outburst of æsthetic interest which caused her two days later, upon her mother telling her that it had snowed, to exclaim: "Let me see it! let me see it, before it melts!"

Even in connection with material interests the child may display sense for the æsthetic, as when R., four years and eight months old, said to her mother: "When I've peeled a banana, I always wait a bit before biting it, for it looks so pretty when it's whole."

Again, when about five years and five months old, R. was in the Zoological Gardens with me one spring day, and seeing a tree in (the adjacent) Frederiksberg Gardens, which was just bursting into bud, she exclaimed: "Oh, Father, do look at that beautiful tree!" We had not previously been discussing anything in this connection.

[1] A toy much in vogue with Danish children, consisting of a pin surmounted by a small glass bird or animal of various colours.

At the age of six years and one month, it became evident that R. understood the perspective effect of distance. She was looking at a picture representing a pack of wolves, of which the hindmost ones were a long way off. I asked her: "Why is that [hindmost] wolf so small?" and she replied: "Because it's so far away. It's just as big as that [the foremost] one when it comes right forward." But her understanding of perspective was purely intellectual for, as has been seen, there is scarcely a trace of it to be found in her drawings.

CHAPTER IV

THE CHILD'S INTELLIGENCE

JUST as, to secure knowledge of the child's physical development, we *measure* its height, weight, etc., so when requiring exact knowledge (as opposed to calculation) of the child's psychical characteristics, we must take measurements in the psychical sphere. But whereas it is simple enough to measure bodily changes, spiritual ones, being less tangible, nearly always evade the test. However, in cases where it is impossible to secure an *absolute* measurement, we can, by comparing together many children, obtain a comparatively reliable estimate of the child's *relative* psychical development; and this, after all, is better than nothing.

Among the psychical attributes for which a measure has been sought is the child's *intelligence, i.e.* its inherited aptitude for psychical work; or as explained by Binet: "*The child's general psychical powers of adaption towards new tasks and conditions, with which life in the moment confronts it.*"

It is, of course, not difficult to form a very rough estimate and decide whether a child is either an idiot or very much highly gifted. But as soon as we have to deal with the finer distinctions, an accurate estimate

is very difficult to attain, especially in cases where the child does not attend school and is therefore not tested regularly day by day. Besides, the school itself may lead us astray, for in this connection the most important point is not so much the child's sum total of knowledge (*i.e.* what it has acquired of learning) or power of memory (*i.e.* what it *can* acquire of learning), but its *inherited aptitude for all kinds of psychical activity, and first and foremost, reasoning activity*; and it is by no means to be taken for granted that school training develops these natural gifts.

The French investigator Binet, seconded by his assistant Simon, has made special investigations to arrive at a standard of measurement for the child's intelligence, more particularly the reasoning powers (which show themselves in the child's capacity for conquering new hitherto unknown difficulties by means of thinking). After exhaustive experimental work, Binet-Simon produced in 1908 (and later in 1911 in an improved form) a kind of "Intelligence Scale" for the ages two to fifteen years; and although I consider the Binet-Simon scale far from unimpeachable, it may nevertheless perhaps be found of value in tests of intelligence, especially when used with discretion in experienced hands.

Translated and revised by Dr. med. Fischer Nielsen, the scale is as follows:—

THIRD YEAR

1. *Point out your nose, your eye, your mouth.*
2. *Repeat two numbers*: 3—7; 6—4; 2—5. (One out of the three must be correct.)

3. *Name the objects on a picture* (Fig. 40, facing p. 116). (The child must be able to recognise and name the single things: boy, cart, etc.)

4. *Tell me your surname.*

5. *Repeat the words I now say: It is warm, I am thirsty.* (There must be no mistake.)

FOURTH YEAR

1. *Give sex—Are you a little girl or boy?*

2. *Give the name of a key, knife, and coin.* (The child is shown the articles, and asked: What is this?)

3. *Repeat three numbers*: 7—1—4; 2—8—6; 5—3—9. (One set of the three must be correct.)

4. *Compare two lines.* (Two vertical lines are drawn parallel to one another 3 cms. apart—the one being 5 cms., the other 6 cms. long, the question is asked: "*Here are two lines, which is the bigger?*"—The child must immediately be able to point out the correct one.)

FIFTH YEAR

1. *Compare two weights.* (Two boxes absolutely alike in appearance are taken, one weighing 3 grms., the other 12 grms.; they are placed 6 cms. apart, and the child is asked: "*Which of these two boxes is the heavier?*" Thereafter the same test with two other boxes weighing 6 and 15 grms. respectively. Thereafter the first pair of boxes again. There must not be a single mistake; if there is any doubt of the result the test may be repeated.—For boxes new match-boxes with the contents weighed may be used.)

2. *Copy a square* (side 3 to 4 cms.), with pen and ink. (The angles especially are important.)

3. *Repeat a sentence of ten syllables* (E.g. "*My name is Conrad; down, you naughty dog.*")

4. *Count four* 1-*Øres.*[1] (Four 1-Øres are laid in a row and the child is asked: "*Here are some coins; can you put your finger on them and count how many there are?*")

5. *Test with the severed visiting-card.* (In front of the child is

[1] Farthings and half-pennies, etc., can of course be used instead.

placed a complete visiting-card ; nearer the child another which is torn in two pieces and arranged so that the two hypothenuses form a right angle with one another. The child is asked : " *Can you put these two pieces together, so that they become like that card there ?* ")

SIXTH YEAR

1. *Distinguish morning*[1] *and evening* (*forenoon—afternoon*).—

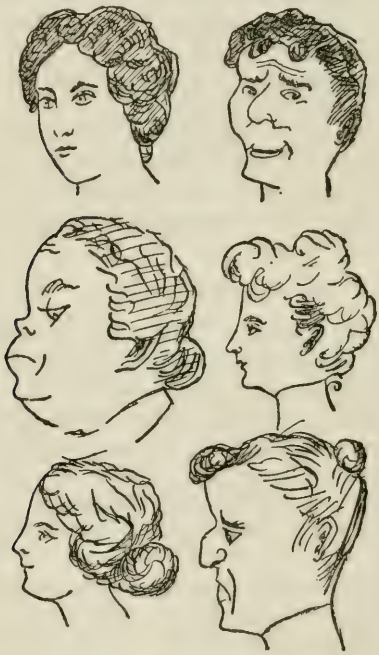

Fig. 34.

[1] In Denmark the day is divided into four periods : *Morgen* (morning) from dawn till about nine o'clock : *Formiddag* (forenoon), about nine to twelve ; *Eftermiddag* (afternoon), twelve to about five ; *Aften* (evening), about five o'clock until about eleven o'clock. These times vary according to the seasons.

The child is asked: "*Is it morning or evening now?*" (or forenoon—afternoon.)

2. *Definition according to use*: "*What is a fork—a table—a chair—a horse—a mother?*"

Good answer: "To eat with"; "put something on," etc. On the contrary a *repetition*, as: "A table is a table" is a bad answer. —Abstract definitions are not mastered by the child until the age of nine, *e.g.* a fork is an "*implement*," a "thing" to eat with; a horse is an "*animal*," a "mammal" which——; a mother is a "*lady*," a "person" who—— etc. etc.

Three answers must be correct.

3. *Copy a rhombus* (side 3–4 cms.), with pen and ink.

4. *Count thirteen* 1-*Øres*.—The child to place the finger on each and count aloud.

5. *Compare faces from an æsthetic point of view*.—The child is asked (*vide* Fig. 34): "*Which of these two faces do you think is the better looking, this one or that one (pointing)?*" The answer must be correct in all three cases.

SEVENTH YEAR

1. *Difference between right and left*.—"Hold your right hand in the air. Point at your left ear."

2. *Description of pictures* (Fig. 40).—"*Tell me everything you can see in the picture.*"

Good answer: "A man and a boy pulling a cart."

3. *Perform three tasks in succession*.—One puts a key on a chair, shuts the door, places a box on another chair, and says: "*Now look: there is a key on this chair, a box on that, and the door is ajar. Now first of all give me the key, then put the box on the table, and then shut the door.*"

(The three things must be done as directed without further help.)

4. *Count nine Øres, three* 1-*Øres, and three* 2-*Øres*.—Three 2-Øres and three 1-Øres are arranged in a row; the child is asked: "*Can you count this money and tell me how much there is altogether?*" Must be done within ten seconds and without a mistake.

5. *Name four colours*.—Four coloured strips of paper are taken

(red, yellow, blue, green), 6 cms. long and 2 cms. wide. "*What colour is this . . . and this . . . etc.?*"

Must be done within six seconds and without a mistake.

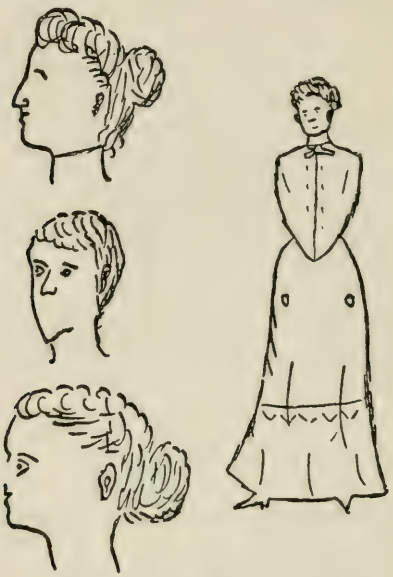

Fig. 35.

EIGHTH YEAR

1. *Compare two objects from memory*: Butterfly—fly ; glass—wood ; paper—cardboard.

The child is asked : "*Have you seen a butterfly?—Have you seen a fly ?—Are they alike?—Why not?*"

An exact distinction must be given in two of the three cases.

2. *Counting from 20 to 0.*—"*Can you count from 20 backwards: 20, 19, 18*——?" No more assistance may be given.

Must be done within twenty seconds with not more than one mistake.

3. *Naming missing parts in figures.*—*Vide* Fig. 35. One points at the figures, and says: "*Can you tell me what is missing in that face (that lady).*"

At least three good answers are demanded.

4. *Naming the date of the day, etc.*—There is asked: the day of the week, the month, the date of the month, and the year. The date of the month must be correct within three days, the other answers must be exact.

5. *Repeat five numbers*: 7—3—5—9—2; 9—1—3—5—7; 2—5—8—1—3.

One row of the three must be correct.

NINTH YEAR

1. *Giving change back from one Kroner.*—One gives the child a little box in which is some small change, and says: "*Now let's play at shops; you are the shopkeeper and here is your till; now I come and buy sweets for 20 Øre; I pay for them with one Krone. Please give me my change?*"

2. *Definition of objects.*—Fork, table, chair, horse, mother, etc. (*vide* second question in sixth year).

Three good definitions are required.

3. *Naming all our coins.*—These are placed with denomination underneath; one points at each, and says: "*What coin is that?*"

Time limit, forty seconds. A single mistake may be regarded as a slip, and the test is allowed to be repeated.

4. *Naming the months.*—Time limit, fifteen seconds; one omission or inversion is permissible.

5. *Answering easy questions.*

(*a*) "*When you come too late for the train, what are you to do?*"

(*b*) "*If a friend were to hit you accidentally, without it being his fault, what would you do?*"

(*c*) *When you have broken something belonging to somebody else, what ought you to do?*"

Two out of the three questions must be answered correctly.

TENTH YEAR

1. *Putting five different weights in order.*—Five boxes of identical appearance, weighing respectively 3, 6, 9, 12, 15 grms. are mixed together and placed before the child.

"*Here are five boxes, they are not equally heavy, but are all different weights, can you place them in a row, so that the heaviest comes to stand there, then the next heaviest, and then the next; and the lightest one shall stand here?*"

The test is repeated three times, of which two must be done correctly. No help may be given the child to start, for example, by showing it that it shall lift the boxes; children of normal intelligence understand at once that a comparison must be made; children of inferior intelligence, on the contrary, place the boxes at once in a row without comparing their weights.

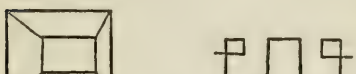

FIG. 36.

2. *Copy two drawings from memory.*—One drawing is a prism and the other a Greek border, which are shown to the child for a space of ten seconds. One says first of all: "*Now I am going to show you two small drawings; look well at them, for I shall take them away almost at once. Then you are to draw them on the paper, as well as you can remember them.*"

One whole drawing and at least half of the other must be correct.

3. *Criticism of nonsensical sentences.*—The experimenter says: "*Now I shall tell you something; perhaps part of what I say will be nonsense; listen carefully so that you can tell me what the nonsense is.*"

(*a*) A man was out on a bicycle; he fell and broke his skull and died on the spot; he was taken straight to the hospital, where they were afraid that he could not live.

(*b*) I have three brothers: Henrik, Peter, and myself.

(*c*) Yesterday the body of a young girl was found in a field; the body was chopped into eighteen pieces; the people who found her supposed that she had killed herself.

(*d*) Yesterday there was a railway accident; but it was nothing serious, only forty-eight people were killed.

(*e*) A man said: "If I ever happen to kill myself from sorrow, I shall never do it on the thirteenth day of the month, because thirteen is an unlucky number and it might bring me bad luck later on in life."

4. *Understanding difficult questions.*

(*a*) When you go to school in the morning and you leave home too late, so that there is danger of your coming too late to school, what will you do?

Good answers: "Run," "hurry," etc. Bad answers: "Take a note from home," "Tell the teacher," "Cry," etc.

(*b*) What must you do, before entering into an important business agreement with anyone?

Good answers: "Think it over," "Look closely into matters," "Make inquiries," etc. Bad answers: *e.g.* "See if you have money," "Look through the window," etc.[1]

(*c*) Why do we forgive a wicked deed more easily when it is done in anger, than a wicked deed when it is done without anger?

Good answers: "You don't know what you do when you are angry," etc. Bad answers: *e.g.* "You mustn't do wicked things," "It's sinful to be angry," etc.

(*d*) If asked how you like some boy or girl whom you know nothing about, what would you answer?

Good answers: "Keep silent," "Say I don't know him," etc. Bad answers: *e.g.* "Ask what his name is," "Say he's nice."

(*e*) Why should we judge a person by what he does rather than by what he says?

Good answers: "Because he may be telling a lie," "You can see what he does," etc. Bad answers; *e.g.* "He doesn't know what he says," "You shan't judge a person."

The child may have twenty seconds to think over each

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[1] The Danish word *Forretning* can mean either "business" or "shop"; the above answer was caused by the child confusing the two.

question ; and three good answers are necessary for the child to pass.

5. *Making a sentence which includes three given words.*—One may use the words : Copenhagen, the Sound, money (Binet : Paris, fortune, ruisseau.)

The words are written on a piece of paper ; the child is given another piece of paper and a pencil (to be preferred to a pen here), and told : "*Here you see three words I have written down*" (read aloud), "*can you now make one or two sentences in which the three words occur, and which make sense, and then immediately write on the paper what you have thought of ; you may write badly if only you can do it quickly.*"

The child is allowed one minute to do this ; two sentences are the most allowed for the three words ; it is not, however, the number of sentences which is decisive, but only whether the same *line of thought* runs through the sentences. *Children of twelve years or more* must be able to arrange the words in one sentence, or, rather, in *one thought.*

The sentences must be wholly or three-quarters completed, and at all events be *said* within one minute.

The test provides an excellent glimpse into the child's imagination, range of ideas, and synthetical faculty. I cite some examples of answers given : "Copenhagen is the capital of Denmark ; the Sound has ships ; I wish I had some money." In this case are three sentences with three thoughts expressed and it is therefore marked "bad." "Many people wish to have money ; Copenhagen is situated on the Sound" ; here are two sentences with two ideas, which is a "good" answer for a ten-year-old child, but, on the contrary, "bad" for a twelve-year-old.—"Copenhagen is situated on the Sound, and if you want to go for a sail you must have money." "The Sound is Copenhagen's chief strait ; in olden days you paid money to pass through." "When you pay money you can go up into a tower and look out over the Sound." "King Christian IV., who had his castle in Copenhagen, used to take a lot of money for sailing on the Sound."

Each of these last four examples consists of only one idea, and thus counts as "good" both for ten- and twelve-year-old children. This form of answer is the most common. More

rarely there is one idea expressed in *one* sentence, *e.g.* "In Copenhagen by the Sound much money is earned," or "Copenhagen's Sound is worth a lot of money."

Unfortunately the Binet-Simon system of questions and tests is not altogether satisfactory.

To the following account, therefore, of the results given by my own children I feel compelled to add a few criticisms. For convenience sake each test is provided with two numbers, the first of which designates the child's age, the second the number of the test. The reader is asked, therefore, when perusing the account, to refer to Fischer Nielsen's text. Thus, for example, 3—2 means the third year's second test (or question).

S. was tested on 2nd January 1917, when she was not quite four years old (her birthday being on 18th January). We "played" in order to obviate bringing her into an abnormal state of mind.

First I tried her with 3—1; and S. pointed out correctly both her nose, eye, and mouth; and, in addition, her ear, hair, neck, arms, leg, chest, back, stomach, head, forehead, chin, and eyebrow. This test, however, is not a trial of *intelligence*, but is exclusively a test of the child's *recollection* of what it has previously heard from its parents, relatives, etc. When, for example, you point to your nose and say "nose," it cannot be regarded as a tremendous strain on the child's *intelligence* to learn the name of the object referred to. The child merely practises a sound which represents an object; and this demands nothing but attention and memory. Besides, inability to press the test may be due, not only to the fact that the child has not been taught the name of its nose, eye, and mouth, but also that it has not learnt the

verb "point out." The examiner must therefore—at any rate when the child is a stranger—make certain that it knows what to "point out" something means; and even then we cannot be certain whether its inability to answer the test is the result of stupidity or of neglected education.

S.'s next Test was 3—2: to repeat two numbers, 3—7, 6—4, and 2—5. She had no difficulty in doing what was required, but here again there is no question of *understanding*. It is useless to object to this criticism on the grounds that the backward child fails; for we cannot be certain that inferior intelligence is the cause of the failure, or whether it is due to inferior powers of attention or inferior memory, or both. But as both memory and attention (which are by no means identical) are of the utmost importance in mental work, the test is nevertheless obviously of some value. The disadvantage is that an imperfect answer may be due to any one or more of three different causes: that the child does not know what "to repeat" means; or that it is inattentive; or that it cannot retain the figures in its memory.

The Test following, 3—3, was a description of the picture facing p. 116 (Fig. 40). I asked S.: "Can you tell Father what you can see in this picture?" S. answered: "A boy and a man, a cart, a basket." The reply is typical for a child of her age, in that she only mentions some disconnected substantives; not that S. saw very much. But was it indeed a test of *intelligence* — or, to put it more fully: the child's general psychical ability of adapting itself to new tasks and conditions with which life in the moment confronts it? Scarcely! For in S.'s case the new

task was the picture she should describe; but her ability to do so was almost entirely dependent on what her environment had taught her of the things seen in the picture; and she has merely shown that she has learnt to know boy, man, cart, and basket, and that her attention was quickly tired.

With regard to 3—4, I at first received no answer to the question: "Can you tell your surname?" But when I changed it to: "What are you called?" the child answered correctly: "S. Rasmussen." But *has* S. displayed inferior intelligence by not being able to discover that "surname" means the "last" name? No; nothing of the sort was intended in the question. She has merely not learnt the designation "surname," scarcely indeed the word "name." She knows, however, quite well what she "is called."

Finally, I tried 3—5, which S. also managed successfully; but it is exclusively a matter of attention and memory for a child to repeat the sentence: "It is warm, I am thirsty"; for the act of repeating it does not prove at all that the child understands the *meaning* of the sentence.

So far as I can see, all the tests for the third year are failures when regarded as tests of *intelligence.* On the other hand, they are perhaps of value as tests of the child's attention and memory; but only of memory when it is certain that the child is fully attentive. It can very well occur that a child is distrait for one moment although perhaps as a rule perfectly capable of concentration.

S. and I, however, "played" further, and tried 4—1. S. answered correctly, "A girl"; but again, it is no proof of a child's *intelligence* that it knows whether

it is a boy or a girl. For the child does not reason itself to the result, but only repeats something it has heard others say. In the event of a child in the fourth year not having heard it said that it was a boy (girl), still less would it have learnt of other children the fact that they are boys (girls); and hence would be unable to judge its sex by means of analogy, *e.g.* by the cut of its clothes or the length of hair. Besides, the ideas of boy and girl are not nearly so sharply opposed to one another in the child's mind as in the adult's. Thus R., when about three years old, having had her hair cut short, called herself "a carpenter boy" because she was then staying at the house of my brother, who is a carpenter and had short hair. If at that age she had been confronted with Test 4 — 1 she would perhaps have answered "a boy."

S. had no difficulty in passing Test 4—2. She knew both key, knife, and money. But if she had not known them it would have been less her fault than the fault of her education. With examples of this description it is the parents who are examined, not the child.

The next Test, 4—3, demands that the child shall repeat three numbers: 7—1—4; 2—8—6, and 5—3—9. S. did not fail; but in this case her attention and memory only are tested, with the additional disadvantage that it is impossible to tell which of them is at fault, in the event of the child making a mistake. When, however, the child repeats the numbers *immediately* it is probable that the fault consists in insufficient attention.

Finally, there is Test 4—4, a comparison between

two parallel straight lines 3 cms. apart, in "vertical" position, the one being 5 cms., the other 6 cms. long. The child is asked: "Which of the two strokes is the longer?" and must be able instantly to point to the correct one. S. could; and here it may be claimed with justification that the child's intelligence is tested, especially its faculty of thinking (reasoning powers), for it is confronted with a new task, even if the task *may* resemble something which has happened before; and for the child to surmount the difficulty it must observe the lines, compare them and "understand" that the one is longer than the other. This is, of course, assuming that the child comprehends the language employed. The test is therefore not entirely above criticism.

As S. showed no signs of fatigue, we attacked the tests for the fifth year. Having no weights we omitted 5—1, against which can be raised the same objection as against 4—4. There is, to wit, a risk of failure through the child not being acquainted with the word "heaviest."

Test 5—2, demands that the child shall reproduce a square, especially the angles. I drew the accompanying square (Fig. 37) and asked S. to draw a figure like mine. Her first figure has one nearly correct right angle and something approximating another, but otherwise is very faulty; her second attempt is rather better in that three of the angles approach accuracy, but her reproduction is very poor. But what has been proved now? Perhaps S. has omitted entirely to "observe" the original square, and has merely remarked to herself: a figure. Or perhaps she has noticed that the figure was a quadrilateral,

but failed to see that the lines go straight across one another, *i.e.* that the angles are right angles. Or perhaps it is her skill in drawing which is deficient. Or perhaps something else is wrong. There are many possibilities, alas, concealing the reason for her faulty reproduction. The test, therefore, tells us only the bare fact, that S. could not reproduce a square; and we are left in the dark as to whether her failure

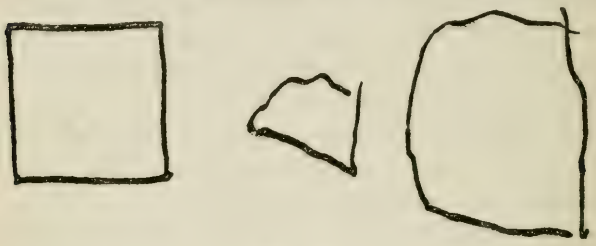

Fig. 37.

is due to lack of *intelligence* or lack of attention, or merely lack of skill in drawing.

Test 5—3 was a failure; but upon my changing the sentence to: "I am called Sonja; down, you naughty dog," S. repeated it quite correctly, although in a scared, whispering voice. As soon as the sentence no longer contained a strange idea she could repeat it well enough. Her lack of ability to reproduce the original sentence was therefore presumably caused only by her becoming confused through not knowing the name Conrad. Although it sounds paradoxical, it is my belief that she was upset because she did not *understand* the sentence; and in consequence could not reproduce it just because she *thought*, when there was nothing to think about.

Test 5—4 passed off smoothly, and 5—5 likewise. S. apparently did not "think" at all. But with the latter test the child *should* think. Counting four 1-Øre coins (5—4), on the contrary, scarcely requires thought! The child learns to count quite mechanically from its environment, and it also acquires from outside sources the information that four coins in a row correspond to the numerical alphabet 1—2—3—4. Therefore the trial when arranged according to the Binet-Simon instructions is, in my opinion, nothing but one of attention and memory. This view was confirmed quite accidentally when, a month or so later, I placed four 1-Øre coins—but not in a row—before S., four years and one month old, and asked her to count them. She said: "1—2—3—4" already at the first two, and then added: "5—6" at the remaining ones. But upon my making her count respectively 1, 2, 3, and 4 1-Øres and again removed some of them, she learnt quickly and surely to count them correctly. I feel convinced that this fortuitous "check" experiment proves that the Test is a test of memory and attention only and does not provide a measure for the actual thinking powers.

In order to see how much further S. could stand the Tests we continued "playing," and tried 6—1. She first of all answered "morning" and then corrected herself to "evening," but the amendment may be due to chance. Unfortunately I neglected to investigate this; for 6—1 is a genuine test of understanding. Unless the child has, by chance, just the moment before heard the time of day mentioned it *must* think in order to decide whether it is morning or evening. The strength of light is similar in both

cases, and in consequence a special sign is necessary to settle whether it is the opening or the close of day. Towards evening on February 20, 1917, I asked S.: "Is it morning or evening now?" and she answered: "Morning." Upon my inquiring: "What makes you say that?" she pointed towards the window and answered: "Can't you see it's light?" But as a matter of fact it was afternoon, just before dusk. The child therefore could not "think" properly.

S. fared no better with 6—2. She repeated slavishly each noun instead of defining it, answering,

Fig. 38.

for instance, "A fork" when asked, "What is a fork?"

Neither, as will be seen, was S.'s reproduction of a rhombus of a superior order; and when requested to count 13 matches, which I designedly laid in a heap, she failed to finish. On the contrary, she succeeded in answering 6—5 correctly with respect to the first two pairs of figures; but at the third pair she maintained obstinately that the lady on the right was the prettier; and this really can *not* be regarded as a matter of taste. S., therefore, failed utterly with the tests for the sixth year. On the other hand, a couple of casual observations made some weeks later proved that she *could* think logically. On this occasion R. said to her: "It's cold here [in bed]," to which S.

remarked: "No, it can't be, for Father has [just] been lying there." About a fortnight later when the children were playing with their wooden bricks, R. remarked: "I think this brick's smaller than the others; don't you?" Thereupon S. replied: "Look and see." Feeling doubtful as to her meaning, her mother asked: "How do you look, S.?" and to this S. returned: "You must go like this," and placed the little brick on top of the big one. A reliable test could be arranged, I believe, in this very manner, by placing before the child two bricks of identical appearance and of almost identical length, arranged so as to form a right angle with, but not to touch, one another; and then asking: "Can you tell me which brick is the larger?" It is impossible for the child to master this task without using its intelligence.

The Tests were first used in connection with R. when she was five years and four months old. I first of all asked her: "What is a chair—a table—a fork?" according to Binet's instructions, and received each time the unsatisfactory answer: "A chair," and so on. But, as an experiment, I then altered the question to: "What is a chair used for?" to which she thereupon replied quite sensibly: "To sit on"; but that, of course, was not very difficult to discover. Later on we tackled 5—2: to copy a square; in addition, I set her an isosceles triangle, an equilateral triangle, a rectangle, a trapezoid, and a circle; and, except for the last named, which requires practice, she produced very creditable results. The trapezoid, which she immediately called "a roof," she made slightly crooked; in other figures the angles were quite well

executed. In Test 5—3 she only omitted the word "down." Test 5—4 was much too easy, as she was already able both to count and to write up to one hundred. 5—5 she succeeded in doing after a little hesitation. Taking a test at random I asked her

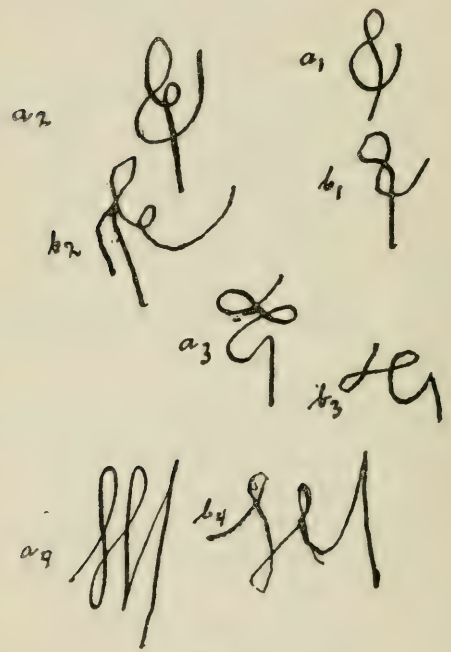

Fig. 39.

impression of Figs. 34, 35, and 40. Of Fig. 40, she said: "A man and a boy, who are pulling a cart"; so that her description was in advance of S.'s in that she remarked the *action* in the picture. In Fig. 34 she chose correctly in all three cases the better favoured physiognomy. Likewise in Fig. 35, she found no

FIG. 40.

[*To face p.* 116—*vol. ii.*

difficulty in locating the missing portions of the figures. I next tried which [Danish] coins she could recognise without seeing the numeral. She named without difficulty the 1-Øre, 2-Øre, 5-Øre, 10-Øre, 25-Øre and 1-Kroner. On the contrary, she did not know the 2-Krone before turning it over and seeing the numeral. Finally, I drew a row of ciphers, as in Fig. 39, of which those marked *a* are by me and those marked *b*, the corresponding copy, by her. To obviate her knowing the ciphers I picked out uncommon ones.

When R. was five years and eight months old, I asked her the "rubbishy" questions in 10—3. After sufficient time for thought she answered them all sensibly except for *b*: "I have three brothers, Hans, Christian, and myself. What do you say to that?" R. answered: "Yes, that's right. You should put yourself last." She had not discovered that the question contained a logical contradiction, and was in consequence guilty of a lack of intelligence; but allowance must be made for the fact that R. was in her sixth year and the question is meant for a child of ten.

These first trials with R. were carried out in a very desultory manner, because I was already fully acquainted with her standard of development from other sources; but when she was six years and one month old, I tested her fully. She passed all the tests for the sixth year without a mistake, as also for the seventh year. In answer to 7—2 (to describe Fig. 40, which she had done on a previous occasion) she said: "There's a man and a boy and they are pulling a cart. There's a basket behind the cart and

one in front, and some inside, and there's something *there*, I don't know what it is. The cart is nearly upsetting and the road is wet." The next test (7—3) is a trial of attention. It is therefore psychologically incorrect for the experimenter to say: "Do you understand? . . . "; he ought to say: "Do you hear? . . . " for there is nothing to understand. On the contrary, a certain amount of intelligence is required in 7—4, to count three 1-Øres and three 2-Øres, especially when the coins are all placed in a heap—and not in a row, as directed by Binet-Simon. But it depends largely on how much the child has picked up from its environment whether this test can be considered one of knowledge or of intelligence. For R. it was clearly the former and she quickly mastered the task. More useless still is 7—5; to name four colours. R. had long since become acquainted with many more. The result of this test, therefore, is far too dependent on what the child has learnt from its environment.

We then proceeded to 8—1, and R. gave "from memory" a clear account of the difference between a butterfly and a fly. But here, again, the experiment misses its aim; for she has often seen both kinds of insect, whereas other children have perhaps never seen either, but for that reason are not necessarily less intelligent. In this case it would have been quite simple to set a genuine test, by directing the child to describe two living animals, and to point out their points of resemblance and of contrast. It would at all events be a test of observation, and one which at the same time would disclose the child's ability (or non-ability) to compare and to differentiate; and

eventually its understanding of the significance of the animals' peculiarities of construction. Later on will be given a detailed description of such a test.

The following Test (8—2) elicited, although purely by chance, a proof of R.'s intelligence. She had to count backwards from 20 to 0, but matters hung fire at 17. I pretended not to notice anything and at last she came out with 17. But soon she again found herself in difficulties, this time at 13; I then heard her begin to count *forwards* under her breath until she reached the number required—an excellent proof of intelligence, the method of procedure being improvised on the spur of the moment, entirely on her own initiative. As regards the test itself, it is, on the contrary, more one of attention than of anything else. Experiment 8—3 was soon polished off, as on the previous occasion. In 8—4 she lacked the necessary information to enable her to answer, for it is merely a question of knowledge. Finally, 8—5 is nothing but a trial of memory and attention; in which R. made one mistake in the first row of figures, probably through exhaustion.

To check the results I repeated the trials when R. was six years and six months old, at the same time going a little further to ascertain her possible progress. It is obvious that her recollection of the previous occasion probably exercised a considerable influence upon her answers. Nevertheless I succeeded in collecting some supplementary information. All the tests for the sixth year R. mastered without difficulty; but when she had to define "a mother," she said: "I don't know. A mother is nice." One cannot expect, of course, a child in its seventh year

to be able to describe its mother as the author of its being; the child therefore quite naturally gives the explanation that its mother is the specially "nice" one (*i.e.* the one who is good towards the child). Neither did the seven year tests cause her any trouble; but concerning the question of right and left, she said—of my right ear: "The right because it's reversed, when you sit like that," *i.e.* with my face towards her. From her remark one can see that she has understood the phenomenon and has not merely learnt parrot-like on which side right or left lies. Of more interest are her answers to the eighth year tests. To 8—1 she replied: "The butterflies have different kinds of wings and are larger. The fly has little wings and a little nozzle [proboscis]. It has smaller legs too. The butterfly has ripping colours, and the fly is black." Continuing, she answered: "The glass is more shiny; the wood is black." "Cardboard is thicker than paper and more expensive." With regard to 8—4, she could only tell that it was Tuesday; the other expressions she was not acquainted with. Tests for the ninth year she answered on the whole well. Her definitions in 9—2 were: "(A book is something) to read in"; "(A balcony is something) to stand on"; "(A pot is something) to cook with"; "(A cart is something) to drive in and sit on." She did not know all the names of the months. To question 9—5*a* she replied: "Wait for the next train"; to 9—5*b*, she said: "Get out of his way"; and to 9—5*c*: "Say I'm sorry" and "I won't do it again." These answers can scarcely be regarded as unsatisfactory.

Although it was so far in advance of her age,

I tried, too, some tests from the tenth year, omitting however, the first. R. managed 10—2 all right, as

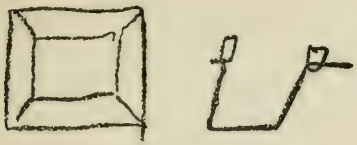

Fig. 41.

Fig. 41 shows. To the nonsensical questions in 10—3 she answered:—

(*a*) "When he was dead, he couldn't be alive."

(*b*) "Then he has two (*i.e.* only two) brothers."

(*c*) "She couldn't do that herself."

(*d*) "But it *was* very serious."

(*e*) "When he had killed himself, he couldn't have bad luck afterwards."

These answers are acceptable; and the questions I consider real tests of intelligence, because they cannot be answered correctly without clear thinking.

I also tried the tests in 10—4, although they seem to me less satisfactory. As for the "bad" answers quoted by Fischer-Nielsen, I find them quite sensible, with the exception of the answer "cry." For, in the event of it being useless to hurry, a note from home or an explanation to the teacher would obviously be quite relevant suggestions. The value of the answer depends entirely on how great "danger" there was of the child coming too late. R. for her part gave the reply: "I wouldn't do it again." To 10—4*b* she said: "I can't answer that"; and unfortunately it did not occur to me that her difficulty consisted

possibly in not knowing the word "business." To each of the succeeding tests (*c*, *d*, and *e*) R. observed: "That's too difficult."

Question *e*, by the way, is of doubtful value, for a person can behave "well" from very questionable motives, and "badly" for thoroughly justifiable reasons. Neither do I consider the other tests, *b*, *c*, and *d*, wholly satisfactory, especially when taking into consideration the answers which are accepted or rejected. Even if a child replies, for example, that it will "make inquiries" before entering into an important business agreement, it can very well also have misunderstood the meaning of "business," and interpreted it in the same light as the child who replies: "Look through the window."

I made no further use of the Binet-Simon Tests with R.; but as so many of the examples are in my opinion open to criticism, I endeavoured to devise new ones, which might justifiably be regarded as tests of a child's ability to "overcome *new* difficulties by the aid of *intelligence*."

The fact that the Binet-Simon Tests *can* serve as tests of intelligence is presumably due to the evolution of a child's intelligence taking place parallel with the development of its attention and memory. But the latter phenomenon does not permit one to assume without further ado that there exist satisfactory powers of thought—to be exact, intelligence—provided there also exist satisfactory powers of attention and recollection. It is therefore of special interest to find tests which can be mastered only by means of the undoubted exercise of the powers of reasoning.

SOME NEW TESTS

A test which at one and the same time satisfied the demand for thought and, in addition, provides a guarantee that the child derives no help from environment, I have found in the practice of *multiplication.* R.'s first trial took place when she was six years and six months old. I employed matches, which I laid on the table in rows of 5 bunches, each bunch containing, according to requirements, 1, 2, 3 . . . 7 matches respectively. R. was asked: "How many is 5 times 1," etc. etc., and she answered incorrectly only once, through carelessness. When in conclusion I asked: "How many times 7 is 35," she pointed to the rows of bunches (each bunch containing 7 matches in this case), "counted them, and said: 5." Although receiving no explanation at all of the principles of multiplication, she was nevertheless able, a fortnight later, to multiply 8, 9, and 10 by 1, 2, 3, and 4 with scarcely a mistake. When we reached 4 times 10, I asked: "Have you now found out how one 'times'"; and thereupon R. answered: "Yes, by counting." I: "Have you also discovered how to add up numbers?" R: "Yes, that is by counting, too." She has therefore discovered of her own accord that addition and multiplication are merely counting.

When R. was almost seven years old I tried this test again to see whether she had made further progress. I again employed matches, but multiplied 1 by 10, and then 2 by 1 . . . 5; 3 by 1 . . . 4; 4 by 1 . . . 3.

Without assistance R. counted herself immediately to the result each time I asked: "What is x times

y?" It is clear, therefore, that she has herself grasped the fact that the multiplication of two numbers is the same as the addition of a series of numbers of equal magnitude.

Some days later, R. being then exactly seven years old, I made another trial, in the hope of advancing another step. But to make the experiment sufficiently I cite my diary in full:

I put five matches in a bunch, and asked of R.: "How many are there?" R.: "5." I: "How many times is 5 there?" R. "1." I: "Then how many is 1×5?[1] R. "It is 5." I added one more bunch, and asked: "How many times is 5 there?" R.: "Two times." I: "Then how much is 2×5?" R.: "10." Thereafter I altered the questions slightly on account of R.'s next answer. When (after adding another bunch), I asked: "How many are there now?" she replied, to wit: "15; for 3×5 are 15," and, thereafter, analogously: "20; for 2×10 are 20." I then asked: "How many times is 5 there?" and R. replied: "4; so 4×5 is 20." I next asked: "How many are there now?" and received the answer "25." Thereupon I asked: "What then can you say 5×5 are?" R: "25." I put down 6 bunches, and asked: "How many are there now?" R.: "30; for 6×5 are 30." I asked: "Did you count the bunches?" R.: "Yes." When there lay 7×5 matches, R. answered correctly "35." I asked: "How did you find it?" R.: "By counting 5 more." Thus after a while she found out by herself that she had only to add 5 to the previous product. This was confirmed when I put down 8×5 matches, for R. said: "Wasn't it 35 (last)?" I:

[1] Spoken as: "one *times* five."

"Yes." R.: "Then there are 40 . . . ; now there are 8×5, that is 40." I: "How many are there now?" R. counts: "41, 42 . . . 45. And there are 9 bunches . . . and 9×5 are 45." At the end I asked: "How many are there now?" and R. said immediately: "50, and 10×5 are 50." I asked then: "What is it you do when you 'time' with 5?" R.: "What is that: to time?" I: "It is to find what 1×5, 2×5, and so on are." R.: "I do it by counting." During the entire trial R. made only one mistake, in that she carelessly said 9×5 are 40, although she had correctly counted to 45; and, as the notes show, she could herself define multiplication, which does indeed consist of counting the sum of equal amounts.

Some days later I again tried the multiplication, R. multiplying 6, 7, 8, 9, and 10 by 1, 2, 3, 4, and 5 respectively. She made only one mistake—through inattention—and the moment I had laid out 6 matches she counted them, and said: "1×6 is 6." Upon my adding 6 more, one to each bunch, she counted without hesitation: "7, 8 . . . 12," and said: "2×6 is 12," etc. etc. In conclusion I asked, to test her understanding: "How do you time numbers?" (a question which is not identical with the one in the previous test); and R. replied: "By counting."

A couple of days later I tried if R. could understand "division." I laid out 2 bunches of matches of 2 each. I then took away the one bunch and asked: "How many are there?" R.: "2." I: "You *divide* 4 by 2 by taking 2 away."[1] I then put out 2 bunches of 3 each, took away 3 matches, and asked:

[1] This is not an ideal definition; but I improved on it as we progressed.

"How many (matches) now?" R.: "3." I: "You divide 6 by 2 by taking 3 away." We continued in the same manner to divide by 3 as far as 15:3. When I then asked R.: "Can you now divide 15 by 3?" she said: "Now I put 5 over there; now we shall see if it's equal" [*i.e.* whether there are also 5 in each of the other two bunches] . . . "Yes, it's right." We then tried 18:3. R. said: "Now I take away 6." I: "How many is 18:3?" R.: "6." At 21:3 R. said: "Now I take away 7 . . . 21:3 is 7." At 24:3 she said: "Now I say 8 . . . 24:3 is 8." But at 27:3 she said nevertheless: "Now I put 8 in each heap, then we shall see if it is right." Thereafter, without a word, she added 1 match to each 8-bunch and said: "27:3 is 9." At 30:3 she said: "Now I put 10 in each heap. . . . That was right . ... now we have divided 30 by 3, and there are 10 in each heap."

About a month later R. and I "played" again with matches. I put down 15, and asked: "Can you divide them by 3?" R. arranged them in 3 bunches with an equal number in each and counted the matches in each bunch. I: "What then is 15:3?" R.: "It is 5."

I then laid out 18 matches, and asked: "Can you divide them by 6?" R. separated them into 3 bunches of 6 each; but upon my pointing out that it was wrong, and telling her to divide the matches into 6 bunches, she divided each of her bunches into 2 of 3 each, and said: "18:6 is 3." I: "Can you divide these [21] by 7?" R. arranged the matches first in bunches of 4 and afterwards in bunches of 2. I: "It came to too many bunches with 2, and too

few with 4; what then will you try?" R. immediately arranged the matches in bunches of 3. I: "How much is 21:7?" R. "3." I: "Can you divide 24 by 8?" She first arranged the matches in bunches of 4 each, then of 2 each, but did not think of trying bunches of 3. I: "Now we shall have these [27 matches] divided by 9." She divided them first of all into 4 unequal bunches, but afterwards into 9 of 3 each. I: "How many then is 27:9?" R.: "It's 3." I: "Now we shall divide 30 by 10." R. immediately arranged them in bunches of 3. I: "How much then is 30:10?" R.: "There are 3 in each bunch."

Thereafter I asked: "What is 3:3, 6:3, 9:3, 12:3?" and received correct answers; but then upon my repeating the last question R. replied "5." She had failed to remark that I repeated the question and therefore became slightly muddled. I had set the trap, having guessed that she had discovered she could mechanically add 1 to the preceding quotient. We corrected the error and proceeded. Upon R. answering rightly that 27:3 is 9, I asked: "Why?" and received the reply: "Because it was 8 before"; a confirmation of my assumption with regard to her method.

Finally I asked: "How much are 3×1, 3×2, etc., to 3×10, and received each time the correct answer, it being evident that she added 3 to the preceding product.

When R. was seven years and one month old, I next tried to teach her "*fractions*." I took a match, broke it in half, and said: "How many pieces did I divide that into?" R.: "2." I: "How much then is each of the pieces?" R.: "A half." R. must therefore have previously picked up the expression:

a half, *e.g.* when a cake was cut in half. I: "Then how much is two halves?" R.: "One."

I now cut a match into 3 equal pieces, and asked: "How many pieces have I divided it into?" R.: "3." I: "Then how much is each piece?" R.: "A fourth part."[1] I: "No, it's called a *third* part. How many third parts therefore are required to make up a whole one?" R.: "3." I: "How many halves do we get out of a whole one?" R.: "2." I: "How many third parts do we get out of a whole?" R.: "3." I: "Can you see from the pieces (which were placed beside one another) which is the larger, a half or a third part?" R.: "A half."

I now divided a match into 4 equal parts and asked: "How many parts have I divided it into?" R.: "4." I: "How much is each of the parts?" R.: "A *four part.*" I corrected it to a fourth part, but her words show nevertheless a right understanding of the size of the fraction. I then asked: "What comes when I put 4 fourth parts together [*i.e.* end to end]?" R.: "A whole." I now placed a half-match by the side of 2 fourth parts, and asked: "Can you now see how much 2 fourth parts are, when compared with one-half?" R.: "The same size as a half." I: "Each of these pieces of a whole is called a fraction." R.: "Why?" I: "Because one gets them by breaking the whole one in pieces, as you have seen; and the word 'fraction' means 'broken.'"[2]

[1] "Fourth part" and "third part" express the Danish original (*Fjerdedel*, *Tredjedel*) literally and more conveniently than quarter, third.

[2] In the Danish the connection between *Brøk* (fraction) and *brække* (break) is more obvious.

In none of these tests in multiplication, division, and fractions can acquired knowledge have had any influence, R. not having yet begun school and never having learnt anything of the kind at home. And it is obvious that these tests cannot be mastered by the aid of attention and memory alone, but that *thought* is also a *sine qua non*. Besides, many of the casual observations made by R. during the tests show how sensibly she thought, "reasoned." It is probable, therefore, that an experimentalist could without difficulty choose a limited number of the test questions for use in a series of trials with *classes* of children, where it would be impossible to examine each separate one as thoroughly as has been the case with R.

Another excellent method of testing the powers of thought is by means of *drawing*. When the child is left to its own devices it still draws, as has been shown, memory-pictures in the kindergarten age. For that very reason, however, one is able, by giving it suitable drawing tasks, to test its powers of apprehension when confronted by a new task not chosen by itself. Such experiments with drawing from the model have, however, already been discussed (pp. 74–79).

For the purpose of securing a direct test of R.'s *powers of observation*, I made her, when seven years and four months old, describe a grasshopper and a humble-bee, both with outstretched wings. I thrust two pins each with its transfixed insect into separate corks, and then stuck the corks into bottles so that she was able to examine them from every side. I then asked: "Can you tell me how these two are different?"

purposely omitting their names in order that the child should receive no help from that source. R. said: "That one (the bee) is red and black and has two wings (the number of wings was corrected to four afterwards when she came to look at it more closely). It's a humble-bee. That one's a dragon-fly. Those two (foremost) wings are a little greenish and the others are white. The white ones are transparent, and the green ones are not. What are these two things? (feelers). This animal here has bigger feelers. And these two? (legs). Two of this one's legs (the dragon-fly's) are shorter than the others (the hindmost). It has six legs. These (*i.e.* the middle pair) are smaller still. There's some cobweb. The feelers are almost as thin (as the threads of the web). Is that really what squeezes it in? (The hind parts had shrunk slightly and were therefore very clearly defined.) It has two little eyes. They're like bullets. The humble-bee has quite a small head. It's like a bullet with two little bullets for eyes. They're not so round (as the dragon-fly's). That's all I can see." I: "Are you sure there's nothing else? What are their bodies like?" R.: "One's thinner than the other, and the bee's is quite round." I: "What is this like?" (the bee's hairy covering). R.: "Like soft velvet."

I: "Now try and find something they both have." R.: "They both have feelers, and they both have four wings. They both have six legs. They both have two eyes."

As far as I can see, this experiment proves that direct inspection of two animals is far superior to Binet-Simon's test on the difference between a fly and

a butterfly. The latter elicits information regarding the child's chance observations and its memory. In direct inspection one acquires definite and exhaustive information on the child's ability to differentiate, compare, and understand objects. In any case direct inspection is excellently adapted to *supplement* the Binet-Simon memory test; and while the value of the latter is very largely dependent upon the child's chance observations, it is, on the contrary, quite easy to find animals suitable for comparison by direct inspection, and which the child has had no previous opportunity of examining. As examples may be mentioned quail and bunting, or lizard and salamander, or cockroach and black-beetle, etc. etc. In a comparison of this kind between two animals the child requires to exercise not only attention and recollection but also thought; for it is a matter of finding differences and resemblances, and, eventually, of grasping the significance of each single animal's construction, *e.g.* the flattened tail of the salamander.

Description of pictures, also one of the Binet-Simon tests, I have practised regularly, because it amused R. For me also it was of value, for I could learn by this means to what extent she had made progress or not; and, if in the affirmative, in which direction.

I have already on page 92 given a report of R.'s description of Lundbye's "Interior of a Cow-stall," when she was six years and nine months old. But I tested her very often, and she made rapid progress. For example, the subsequent description of Vermehren's *Jutland Peasant on the Heath* was already, as regards construction, much better, because it consisted mainly of complete sentences. Owing to my habit of

taking notes of her descriptions, I was able both to guide and observe her progress. Only a few days after her first attempt, R. described N. Petersen Mols' *Turnip Pulling* as follows: "There are two cows, which are pulling a cart, and there are turnips in the cart. And the cows have big horns, and ears at the side (of the horns). And there are two ribands (reins) which are crossed. The cows have black spots on. There are two poles by the cows. Then there's a pole by the cart (shaft) which the reins (traces) are on. Then there's a little corn (straw) there (on the collar). And a man, who is putting turnips up in the cart, and a little boy who stands and watches it. The field is just by the water. Look, Father! there are such a lot of leaves from the turnips on the ground. The sky is all white."

This description not only shows thoroughness and understanding, but is also expressed in fairly good sentences. Thus noticeable progress is evident in the space of a very few days.

In order to see the possible effect of colours I made some trials later with geographical pictures from the collection: *Autour du Monde.* R. thus described No. XXXIII.: "Workmen in the Roman Plain": "There are four cows in the picture. They have large crooked horns on their forehead. They have some kind of harness, but I don't know what it is (called). Father, please tell me? They're all walking on the grass. There's a pole between them. The other two cows haven't any yokes on. Have I said: A man is walking behind the other two cows? There's a man behind the other two as well. What's that thing over there? There's a fence in the field.

There are small brown spots of grass on the ground. There are some big, withered flowers. Doesn't that cow say, *moo*? The sky is blue and white. The two cows are black and you can see shadows from them on the field. One cow has shadows on it. They all four go the same way. They have rings through their noses."

Thus colours elicit nothing specially new except just the reference to them; on the other hand, it is worth noticing that she not only understood the animals' shadows on the ground, but also that shade falls on the animals.

Last of all I have employed story-repetition as a test.

The originals are found in Matzen's *Dansk Læsebog*, Part I.; and the trial was made when R. was seven years and two months old. First I read aloud the following story twice.

THE PEASANT AND THE MOUSE

An old peasant had hidden a cheese in his cupboard, but the cupboard was not secure, and the mice crept in and gnawed the cheese. "See me put a stop to that!" thought the peasant. He shut a cat in the cupboard in order to make the mice afraid, and when he had done this he went to bed. But when next morning he opened the cupboard he saw that the cat had eaten the whole cheese.

Thereupon R. retold: "A peasant had hidden a cheese in his cupboard. The cupboard was not secure. The mice crept in. The peasant went out and saw that the mice ate some of the cheese. Then he tried

to tease them by putting a cat in. After that he went to bed. But next morning he sees that the cat had eaten the cheese."

This reproduction proves that she not only recollected the story with its proper sequence of events, but that she also saw the point: that the cat not only ate the mice but the cheese too. That she can understand the point of a story is in any case clear from her reproduction of the story of the man with the hen.

THE MAN AND THE HEN

A man had a hen, which each day laid him a golden egg. He believed at last that there must be a whole gold-mine in the stomach of the hen, and therefore wrung its neck and cut it open so as to become a rich man at once. But when he had killed it and found nothing except what is usually found inside a hen, he complained bitterly because he had lost a comfortable daily income by grasping after a bigger one.

R. reproduced it after two readings, as follows: "A man had a hen which each day gave him a golden egg. He at last believed there was a whole gold-mine in the stomach of the hen. Therefore he cut the throat of the hen, and then he found nothing except what he usually found inside an ordinary hen. He was very sorry, for he saw that he could have been much more rich if he had not killed the hen."

R. has clearly understood the whole story; and her conclusion especially shows that she is fully aware of the point, for in reproducing the thought she has used totally different terms from the original. As

far as I can see, therefore, well-chosen reproduction-stories are also of value as Tests. But apart from these artificial means, the child's everyday behaviour offers plentiful material for the observation of its intelligence and of its general psychical idiosyncrasies.

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